STIMULATING DEMAND: AN ASSESSMENT OF THE CONDITIONAL CASH TRANSFER PROJECT IN AFGHANISTAN

by

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Abstract

Statement of Problem: Despite significant progress over the last decade in expanding access to basic health services in Afghanistan, utilization of maternal and child health services remains low. First introduced in Latin America and now expanding to countries in Africa and Asia, conditional cash transfer (CCT) programs, which provide monetary incentives to households meeting certain behavioral requirements, show promising results. While evidence in favor of CCT for low-income and middle-income countries is growing, little is known about the effects of CCT in post-conflict settings where resources are stretched, service provision is limited, systems are fragile, and security is tenuous.

In Afghanistan, the Ministry of Public Health (MoPH), in collaboration with the Global Alliance for Vaccines and Immunization (GAVI), launched a conditional cash transfer project from 2009 to 2011 to increase utilization of institutional delivery and DPT3 vaccination. The program included four intervention arms: in the household arm, women received 300 AFNs for delivering at a health facility and 150 AFNs for bringing her child into the clinic for DPT3 vaccination. In the community health workers (CHW) arm, CHWs received 150 AFNs per completed referral for DPT3 and institutional delivery. In the combined arm, both households and CHWs received incentives for delivery and DPT3 vaccination. Finally, in the control arm, no incentives were provided.

The objectives of this mixed methods, post-test only study are (1) to assess the

association of the three incentive schemes on institutional delivery and DPT3 vaccination in Afghanistan, and (2) to understand implementation factors that may affect program outcomes.

Methods: Concurrent mixed-methods approach was used to assess program outcomes and to gain a better understanding of the implementation factors. Data sources include cross-sectional household survey, in-depth interviews, document reviews, and health facility assessments. To assess the association of the cash incentive schemes on service utilization, I used a mixed-effects logistic regression model with inverse probability weighting to account for differentials in sample characteristics due to non-random selection of study arms through quasi-experimental design. To better understand contextual and implementation factors, I conducted content analysis. Findings were integrated in the analysis phase and formed the basis for program recommendations to policy makers.

Key Findings: Quantitative analysis provided mixed findings. Positive associations between cash incentive and program outcomes (DTP3 vaccination and institutional delivery) were observed in the household arm where families received cash after they had utilized the services. However, cash payments to CHWs for DPT3 and institutional delivery referrals appear to have no effect on service utilization. Finally, in the combined arm where both CHWs and households receive cash, I observed a negative association in the combined arm for institutional delivery, and a positive association for DPT3 vaccination.

Substantial variation in program outcome at the village level were noted, suggesting that unobserved health systems and contextual factors are likely to influence program outcome. This finding is supported by qualitative data. As a result of the limited technical capacity of the organization contracted to implement the CCT project, health facility staff used a variety of strategies to manage delays in cash replenishment and to ensure communities knew about the program and understood the benefits. Despite challenges, most interviewed stakeholders were positive about the program, indicating that CCT may be an acceptable demand-side intervention in Afghanistan.

Conclusions: Findings suggest design, implementation, and evaluation of CCT program in low-resource settings require careful consideration. Program design needs to be informed by a sound feasibility study, and the implementation process should be closely monitored. Further studies are needed to provide the Ministry with more robust evidence on the efficacy and effectiveness of CCT interventions to increase service utilization in Afghanistan.

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Chapter 1: Introduction

1.1 Rationale and Research Questions

Despite significant progress over the past decade, Afghanistan continues to have poor maternal and child health indicators. According to Ministry of Public Health (MoPH) estimates from 2006, between 1600 and 2000 women died each year due to pregnancy-related complications per 100,000 live births, and the mortality rate for children under five years of age was 191 deaths per 1000 live births.[1, 2] While MoPH has made progress toward improving access to health care and quality of services, utilization of maternal and child health services remains low.

In response to this, MoPH, in collaboration with the Global Alliance for Vaccines and Immunization (GAVI), launched a two-year conditional cash transfer project from 2009 to 2011. The pilot project provided cash incentives to households when the woman gave birth at a government facility, and when a child received the third dose of Diphtheria-Pertussis-Tetanus (DPT3) vaccination at the facility. In addition, the government provided monetary incentives to community health workers (CHWs) for each completed referral for institutional delivery and DPT3 vaccination.

Broadly put, conditional cash transfers (CCTs) are policy levers that use monetary incentives to influence household behaviors. The first CCT program was piloted more than 20 years ago as a response to the financial crisis in Mexico. What started as a small pilot project that covered 300,000 families is now an integral component of the

government's social policy, reaching five million individuals (more than 30% of the population). The success of the CCT program in Mexico has led to rapid adoption of CCT programs in many parts of the world and in contexts as varied as India [3], Nepal [4], Zimbabwe [5], Turkey [6], Myanmar [7] and the United States [8], and for a wide range of interventions. According to a 2009 World Bank study, more than 40 countries have implemented CCT programs.[9]

Despite the growing body of evidence in support of CCTs, important research and policy questions remain. In particular, little is known about the effect of conditional cash transfers with health service utilization in post-conflict settings where resources are stretched, service provision limited, systems fragile, and security tenuous.

The two objectives of this study are:

1) to assess the association between cash incentives and utilization of DPT3 vaccination and institutional delivery, and

2) to understand implementation factors that may impact program outcomes.

1.2 Background

A major crossroad linking Europe and Asia, Afghanistan is a land-locked country with an estimated population of 35 million people. Nearly four decades of war have depleted the country of its human resources and destroyed much of its infrastructure. By the end of Taliban rule in 2001, only one-third of the population was literate, less than 40% lived on less than one dollar a day, and a majority of adults reported having been displaced at least once in their lifetime.[2, 10] Early reconstruction efforts were largely successful and have led to improvements in key areas, including health, education, infrastructure, agriculture, and economic growth. Nevertheless, the country continues to face a complex array of political and socio-economic issues, and security continues to be fragile.

Economic Growth

Table 1.1 provides an overview of economic development in Afghanistan. The economy grew at an annual average of 9.2% from 2002 to 2012. From 2009 to 2011—the period when the CCT pilot was implemented—GDP per capita increased by 22%, from $461 USD in 2009 to $550 USD in 2011.[11] The impressive growth, however, belies a faulty foundation. The service industry, which accounts for more than half of the economy, is financed largely by development aid. Agriculture is the second largest industry, employing more than 40% of the population. However, poor infrastructure, along with limited capacity to store and package products to meet international standards, is hindering the country's ability to export goods. As a result, most outputs are limited to domestic consumption. Finally, manufacturing and mining comprise the third largest industry in Afghanistan. The mining industry, in particular, has the potential to spur

sustainable economic growth in the coming years.[12] According to a widely publicized study, Afghanistan sits on over $1 trillion worth of natural resources, including natural gas, petroleum, copper, coal, and semi-precious stones.[13] Strategic investment in the mining industry will be critical in the coming years, as the country aims to generate more domestic revenue and reduce reliance on foreign aid.

Despite the country's overall positive economic performance, most Afghans - particularly those living in rural areas - remain poor and continue to face daily challenges to survive. According to findings from two rounds of the National Risk and Vulnerability Assessment (NRVA), a nationwide household survey that measures living conditions in Afghanistan, the percentage of Afghans that are either below or hover at the poverty line remained unchanged between 2007 and 2011. [10, 14] According to the 2007-2008 NRVA survey, 36% (CI 34.94, 37.60) of the population lives below the poverty line, and according to the 2011 – 2012 NRVA survey, 35.8% (CI 34.14, 37.40) of the population remains below the poverty line. [15]

Geography

Afghanistan consists of 34 provinces covering a wide range of topographies. The country is divided into three geographic regions: the Central Highlands, the Southwestern Plateau, and the Northern Plains. The Northern Plains and Central Highlands cover more than two-thirds of the country's land mass and are marked by rugged terrain and harsh climates. Severe winter storms and frequent droughts, coupled with poor road infrastructure, have made delivery of, and access to social services a particular challenge

in those parts of the country. The United Nations Office for Coordination of Humanitarian Affairs (UN-OCHA) estimates that between 1 and 2 million Afghans have little or no access to essential health services during the winter months. [16, 17]

Security

Insecurity, resulting in civilian casualties and attacks on health care workers and facilities, can impact a health system in several ways; it increases the need for health services while limiting access to services. According to the United Nations Assistance Mission to Afghanistan (UNAMA) annual report, civilian casualties have been on the rise since 2006. Since 2007, the "humanitarian space," defined by UNAMA as the ability of NGOs to provide social services, has shrunk considerably. By 2010, large parts of the south and central regions of Afghanistan were classified as "extreme risk, hostile environment" not suitable for continuous provision of services. [5]

1.3 Maternal and Child Health in Afghanistan

Despite the fragile security climate, Afghanistan has made significant improvements in maternal and child health. **Table 1.2** provides an overview of progress to date on maternal and child health, as measured through successive large-scale household surveys conducted over the past 15 years. They include:

- Two rounds of the Reproductive Age Mortality Survey (RAMOS). The first study was conducted in 2002 and the second conducted in 2011;
- Two rounds of the Multiple Indicator Cluster Survey (MICS). The first survey was conducted in 2003 and the second conducted in 2010;
- The Afghanistan Health Survey (AHS), conducted in 2006;

- Two rounds of the NRVA survey. The first survey was conducted in 2007 and the second conducted in 2011; and
- The Afghan Mortality Survey (AMS), conducted in 2011.

Findings from the surveys, along with qualitative studies, provide an overview of trends in maternal and child health outcomes since the fall of the Taliban regime in November 2001.

Maternal Health

During Taliban rule, very little was known about maternal health in Afghanistan. Shortly after the fall of the Taliban regime, Bartlett and colleagues were among the first teams of researchers to assess maternal health in Afghanistan. The Reproductive Age Mortality Study (RAMOS) was conducted in four provinces - Badakhshan, Laghman, Kandahar, and Kabul. The study sites were purposely selected to represent geographic diversity. The team estimated that the maternal mortality ratio (MMR) was between 1600 and 2200 maternal deaths per 100,000 live births, and reached a high of 6500 deaths per 100,000 live births in Badakhshan. Using the verbal autopsy method, the team concluded that the main causes of maternal death were ante-partum hemorrhage, pre-eclampsia/eclampsia, and obstructed labor. [18]

Following the RAMOS study, the next set of surveys was conducted between 2006 and 2008. The NRVA and the AHS both sought to better understand patterns of health service utilization among women for themselves and their children. While the findings suggested an improvement in utilization of maternal health services, particularly for educated

women in urban areas, the percentage of women who delivered in the presence of a skilled birthing attendant remained low. According to the AHS, 19% of women delivered with the assistance of a skilled birthing attendant, and 15% of women delivered at a health care facility. [2] While the NRVA survey reported slightly higher numbers - 24% of respondents reported delivering in the presence of skilled birthing attendants - findings showed that unattended home deliveries remained the norm in most parts of the country. [10]

In both surveys (AHS and NRVA), education, distance to health facility, and economic status were found to be strongly associated with utilization of a range of maternal services, including antenatal care, delivering in the presence of SBA, delivering at a health facility, and postnatal care. [2, 10, 19]

The most recent set of surveys—AMS conducted in 2010, and second rounds of MICS as well as the NRVA conducted in 2011—showed significant improvements in service utilization and maternal health outcomes. According to AMS, MMR dropped from 1600 maternal deaths per 100,000 live births to 327 per 100,000 live births, and institutional delivery increased three-fold, from 9% to 33%. [20-23] However, it should be noted that there are considerable controversies on the AMS mortality estimates, with some experts stating that the findings are "implausible and invalid." [24, 25] Despite controversies around the AMS estimates, there appears to be consensus among policy makers, academics, and implementers that maternal and child health status have improved over the past 15 years.

Child Health

Much like maternal health, there have been steady and notable improvements in child health outcomes. In 2004, the under-5 mortality rate (U5MR) was estimated to be 191 deaths per 1000 live births, and by 2010 U5MR dropped to 97 deaths per 1000 live births. Similarly, the infant mortality rate (IMR) was 129 deaths per 1000 live births in 2004, and dropped to 74 deaths per 1000 live births in 2010. [20, 26] If the trend continues, the country is well on its way to achieving targets for MDGs 4 and 5 by 2020.

According to the AMS, the principal causes of child death (excluding neonates) were acute respiratory infections (31% of deaths), followed by other serious infections (16%), injuries (13%), and diarrhea (10%). Social-demographic factors—such as distance to facility, relative wealth of the household, and mother's education—were found to be associated with under-5 child mortality. For instance, the risk of dying for children born to a family in the highest wealth quintile was half of those born in families in the poorest quintile (49 and 196 per 1000 live births, respectively). [20, 27]

Immunization

One of the most cost-effective interventions to reduce infant and child mortality is immunization.[28] In Afghanistan, the Expanded Program on Immunization (EPI) was launched in 1978. However due to ongoing warfare and political instability, the program was administered in an ad hoc manner with little consistency in terms of timing of the campaign and types of vaccines provided. After the fall of the Taliban, MoPH, with the

support of UNICEF, revived the EPI program and made the provisioning of routine vaccination a priority. Over the past decade, the government has invested in public awareness campaigns, strengthened the EPI supply chain, trained vaccinators, and engaged CHWs to increase community awareness. As a result, coverage of Bacillus-Cereus-Guerin (BCG), Polio, and Measles vaccination improved.[2, 20, 29]

Coverage of DPT vaccination, however, continued to lag behind. According to the MICS 2003 study, the overall rate of DPT3 immunization was estimated to be 34.6%. When the MICS survey was repeated in 2010 using the same methodology, the team found only a 6 percentage point increase, to 40.2%.[19] A couple of reasons may explain the slow progress. First, DPT vaccination requires three doses and is routinely given at health facilities rather than through special campaigns. While most children receive the first dose of the vaccine, a much smaller percentage completes the full course. Second, DPT3 vaccination is difficult to measure. Many families in Afghanistan do not maintain a vaccination card, and patient record system is non-existent in most health facilities in Afghanistan. As a result, most measurement of DPT3 relies on mother's recall, which may not be entirely reliable.

1.4 Health System in Afghanistan

Shortly after the fall of the Taliban, the government began the monumental task of rebuilding the health care system. The once loosely linked web of clinics, hospitals and vertical programs run by local and international non-governmental organizations was replaced by a structured system of service provisioning and financing on the public side, and a growing number of small clinics and pharmacies in the private sector.

In 2002, the Ministry of Public Health, in collaboration with NGOs and development partners, designed an essential package of health services to address the most pressing health needs of Afghans. The Basic Package of Health Services (BPHS) includes maternal and newborn health, child health, nutrition, communicable diseases, mental health, disability, and pharmaceutical supply, all delivered at the primary and secondary care level. In 2005, MoPH designed the Essential Package of Hospital Services (EPHS), a set of complementary services to be provided at tertiary care facilities. Together, BPHS and EPHS represent a set of standardized services that are provided free of charge to Afghans through the public health care system. The structure of the system is further described in Appendix 1. [30]

1.5 Afghanistan's Conditional Cash Transfer Project Design[1]

The objective of the CCT project is to increase utilization of maternal and child health services. The pilot was implemented in 16 purposively selected districts across four provinces: Badakhshan, Kapisa, Faryab and Wardak from 2009 to 2011.

Description of the Incentive Schemes

The CCT project tested the following incentive modalities: cash to households, cash to community health workers (CHWs), and cash to both households and CHWs. Sixteen districts across four provinces participated in the pilot program. Within each province, four districts were purposively selected and assigned to one of the following intervention arms: control arm, household arm, CHW arm, and combined arm.

[1] This project is also referred to as the Demand-side financing (DSF) program in Ministry documents.

Below are descriptions of the incentive schemes and participating districts for each arm:

- Household Incentive Arm: Families were given 300 AFN (~ $6 USD) when a woman delivered at a public health facility and 150 AFN (~ $3 USD) when a child received the third and final dose of DPT vaccination (commonly referred to as DPT3).

  The following districts participated in the household arm:

  - Badakhshan Province - Teshkan District
  - Faryab Province - Qurghan District
  - Kapisa Province - Hesa Awal Kohistan District
  - Wardak Province - Chak District

- CHW Incentive Arm: 150 AFN were paid to CHWs for each completed referral for institutional delivery and DPT3 vaccination. In these districts, no incentives were given to households.

  The following districts participated in the CHW arm:

  - Badakhshan Province - Shuhada District
  - Faryab Province - Khowaja Sabzposh District
  - Kapisa Province - Hesa Dowan Kohistan District
  - Wardak Province - Jarlrez District

- Combined Arm: Both households and CHWs were provided incentives. Households were given 300 AFN when a woman delivered at a government health facility and 150 AFN per child receiving DPT3 vaccination. CHWs were given 150 AFN per completed referral for delivery and DPT3.

  The following districts participated in the combined arm:

  - Badakhshan Province - Keran District
  - Faryab Province - Gurzewan District

- Kapisa Province - Kobhand District
- Wardak Province – Hesa-I-Behsod District

- Control Arm: No incentives were provided to CHWs and families.

  The following districts were selected as the control arm:

  - Badakhshan Province - Khash District
  - Faryab Province - Seren Tajab District
  - Kapisa Province - Nejab District
  - Wardak Province - Sayed Abad District

Table 1.3 provides a schematic overview of the pilot design

Selection of Pilot Sites

MoPH and HWW used a non-random method to select districts and allocate intervention arms. Participating districts were purposely selected in two stages. In the first stage, four provinces that provided geographic and ethnic variations were selected: Badakhshan, Kapisa, Wardak and Faryab. Badakhshan and Faryab are located in the northern part of the country bordering Tajikistan and Turkmenistan, respectively. Kapisa and Wardak are smaller provinces located in the center of the country, close to Kabul. It should be noted that Wardak was selected to replace Ghor province, after MoPH concluded that there were not enough midwives in Ghor to implement the pilot. [39]

In the second stage, all districts in the selected provinces that met selection criteria at the time of program implementation (2009) were eligible to participate in the pilot project. According to the GAVI Project Summary report, the selection criteria[2] included:

[2] The original set of criteria for selection of Districts included (1) Districts with road facilities and (2) Districts that are generally geographically close to the provincial center for easier data collection and implementation. Both were removed by MoPH on December 29, 2008.

- Availability of active BHC and CHC facilities
- Availability of active CHW system
- Full coverage of target areas with midwives and/or physicians (female medical staff)
- Availability of DPT3 current stock
- Districts that were relatively secure from violence

Four districts within each province were selected and assigned to one of the intervention arm. It should be noted that the final selection of districts was a result of negotiations among central and provincial staff, rather than an attempt to ensure intervention and control districts are balanced on a number of key characteristics. For instance, according to a central level Ministry staff, a remote district in Badakhshan province was assigned as the combined arm because the provincial health officer argued that it was reasonable to give CHWs and households in greater needs, opportunities to make additional income. Similar rationales were applied to other districts.

Figures 1.3-1.7 provide an overview of the geographic distribution of the districts within each province.

As a result of the non-random allocation of pilot districts, notable differences were observed between the control and intervention arms. In particular, according to a baseline study conducted by Hope World Wide (HWW) and the MoPH, women who reside in the combined arm lived further away from a health facility (average distance of 6.75 KM in the control arm vs. 8.89 KM in the combined arm); paid more money for transportation (11% in the control arm reported paying more than 150 AFN, vs. 20% in the combined

arm); and reported fewer visits to the health clinic in the 12 months prior to the survey (average number of visit was 1.54 times in the control arm vs. 1.15 times in the control arm)

Furthermore, significant differences were noted in birthing patterns among respondents. Less than 10% of the women in the combined arm delivered at a health facility. In comparison, 43% of the women in the control arm, 34% of the women in the household arm, and 42% of the women in the CHW arm reported delivering at a healthcare facility for their most recent birth. [40]

Health System Characteristics

Table 1.5 describes the number and types of health facilities in each study arm. A total of 49 facilities participated in the CCT project, including 16 health facilities in the control arm, 13 health facilities in the household arm, 9 health facilities in the CHW arm, and 11 health facilities in the combined arm.

A majority of the facilities that participated in the pilot program are basic health centers (30 facilities); sixteen of the facilities are comprehensive health centers (CHCs) and three are district hospitals (DHs). The distribution of CHCs and DHs, were skewed with more CHCs and DHs in the control and household arm. In particular 4 CHCs and 2 DHs were in the control arm, and 6 CHCs and 1 DH were in the household arm. In comparison, health facilities in the CHW and the combined arm were mostly basic health centers (BHCs) with lower service provision capacities. Health posts and mobile clinics were

excluded from the CCT pilot, as these facilities do not have the capacity to provide institutional delivery.

Pilot Project Timeframe

The pilot project was implemented between April 2009 and February 2012. Cash incentives were given to households and CHWs from July 2009 to May 2011. An endline household survey was conducted from April to May 2011. Finally, health facility assessments and in-depth interviews with stakeholders in Kapisa and Faryab were conducted from November 2011 to February 2012.

Implementation Organizations

Table 1.6 lists the organizations that participated in the CCT project implementation and evaluation. The Health Economics and Financing Directorate (HEFD) within MoPH oversaw implementation and evaluation of the pilot. Hope World Wide (HWW), an international NGO based in Kabul, implemented the project, designed the baseline survey, and conducted both the baseline and endline surveys. Silk Route Training and Research Organization (SRTRO) assisted with the interviews and health facility assessments. Finally, Health Systems 20/20 (HS 20/20), a USAID project that aims to strengthen health systems, provided technical assistance to HEFD in developing the endline survey, training data collectors, and analyzing the data. The implementing partners for the Health Systems 20/20 project included Abt Associates, Deloitte Consulting, and Broad Branch. For the CCT project, staff from Deloitte Consulting and

Broad Branch, in collaboration with SRTRO and MoPH, conducted some of the interviews.

Role of the Researcher

I was hired by Deloitte Consulting in November 2010. One of my projects was to provide technical assistance to HEFD, which included support on the CCT pilot project. It should be noted that I was not part of the team that designed the project, and by the time I joined, the CCT pilot was in its second (and final) year of implementation.

My primary role in this study includes:

- support the MoPH in designing the household endline survey;
- design the in-depth interview guides;
- support the development of training materials for the endline household survey as well as interviews in Kapisa and Faryab;
- develop the health facility assessment form in collaboration with SRTRO; and
- participate selected semi-structured and in-depth interviews.

For the quantitative analysis, I conducted the analysis of the household survey. For the qualitative analysis, I was part of a team of researchers that conducted the analysis. The team included staff from MoPH, Broad Branch, and SRTRO.

Sources of Funding

GAVI funded the implementation of the project and two rounds of household surveys (baseline and endline). USAID funded the qualitative component of the evaluation as well as technical support to MoPH on design of the final program evaluation.

Table 1.1: Economic Developments

Economic Developments								
Indicator / Unit		2008	2009*	2010*	2011*	2012	2013	Source (date)
GDP, current prices / in billions USD		11.7	13.3	15.4	17.2	19.2	21.6	IMF (2013)
GDP per capita, current prices / USD		416	461	519	566	616	671	IMF (2013)
Growth Rate / Percentage						10%		WB
Industries								
Services						54%		CIA Factbook (2013)
Agriculture						20%		
Mining and other industries						26%		
Poverty								
Proportion of population living below poverty line		36%					36%	NRVA 2007/08 NRVA 2011/12
Badakhshan		61%					N/A	
Faryab		29%					N/A	
Kapisa		21%					N/A	
Wardak		41%					N/A	

* CCT pilot was implemented from 2009-2011

Table 1.2: Maternal and Child Health Indicators (2009-2013)

Indicator		Value		Source (Date)
		Source 1	Source 2	
Population		31 million		CSO, 2013
Mean Household Size		7.8 People/household		AMS 2010
Total Fertility Rate		5.2 Rural 4.7 Urban		
Child Health				
Under 5 Mortality Rate (2003)		191		MICS 2003
Under 5 Mortality Rate (2010)		97		AMS 2010
DPT3			40%	(1) AHS 2006 (2) MICS 2011
Measles			56%	
Polio			48%	
Tetanus			41%	
Maternal Health				
Maternal Mortality Ratio (recall period 1999 - 2002)		1600-2200		RAMOS 2002 (Published 2005)
Maternal Mortality Ratio (recall period from 2005 - 2010)		327		AMS 2010
Antenatal Care Coverage				(1) AMS 2010 (2) MICS 2011
At least once		57%	48%	
At least 4 times		16%	15%	
Assisted Delivery		42%	39%	
Institutional Delivery		34%	33%	

Figure 1.1: Trends in MMR in Afghanistan (2002-2010)

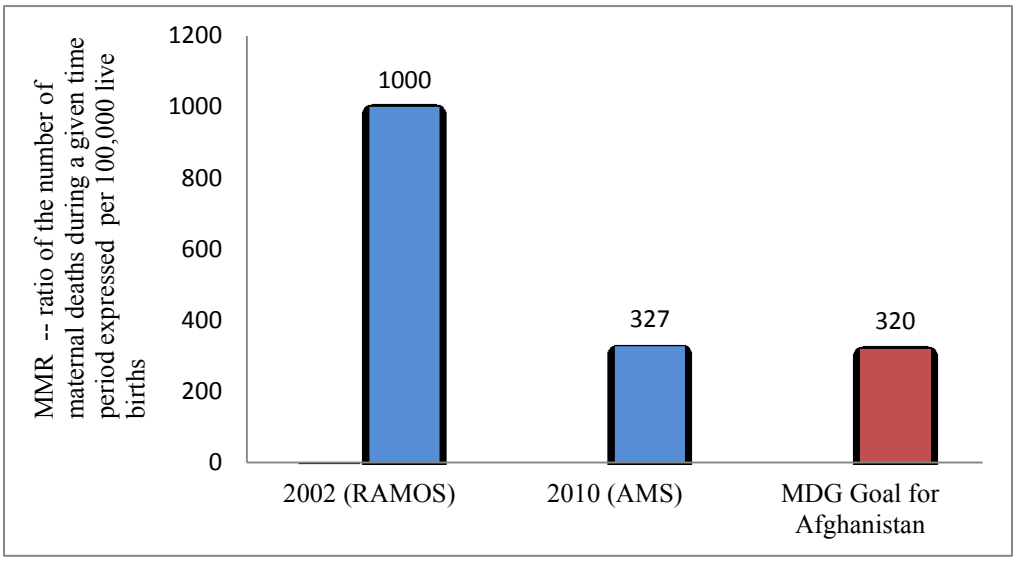
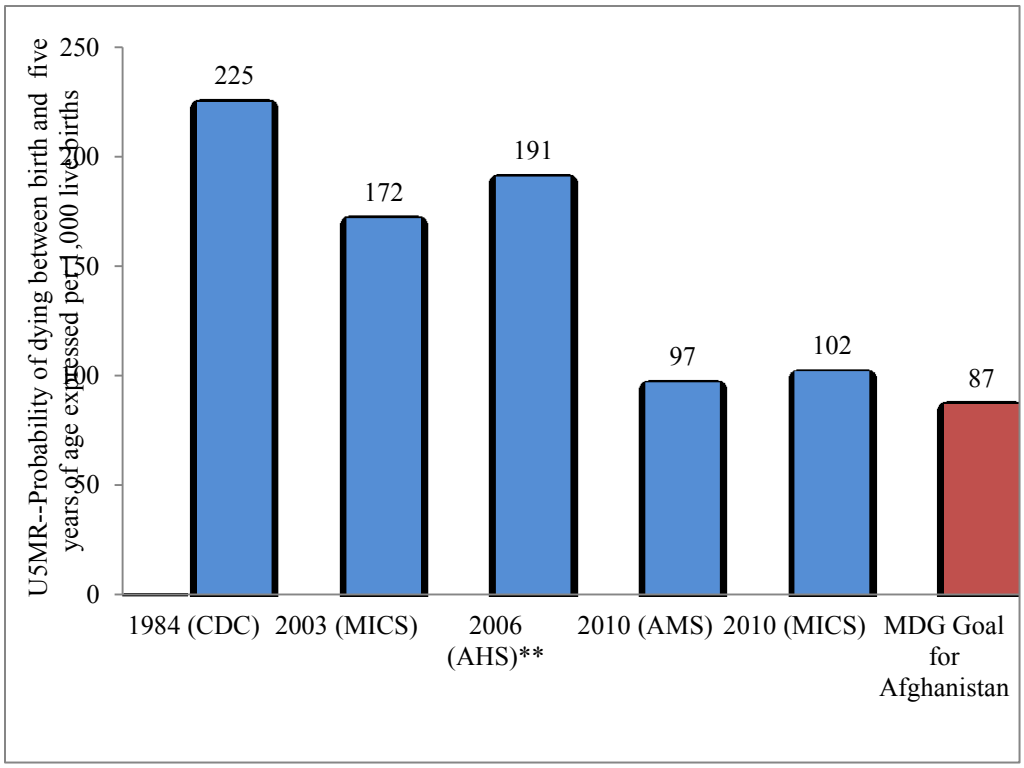


Figure 1.2: Trends in U5MR in Afghanistan (1984-2010)



** U5MR estimates based on secondary analysis of AHS. See paper by Viswanathan et al for more details. [41]

Table 1.3: Conditional Cash Transfer Pilot Design

Overview of the CCT Pilot					
		Household Arm	CHW Arm	Combined Arm	Control
Target Population		Households	CHWs	Households and CHWs	No Incentive
Incentive Amount	Delivery	300 AFN	150 AFN per Completed Referral	HH: 300 AFN CHW: 150 AFN	
	DPT3	150 AFN	150 AFN per Completed Referral	HH: 300 AFN CHW: 150 AFN	
Pilot sites					
Provinces		Districts			
Badakhshan		Teshkan	Shuhada	Keran	Khash
Kapisa		Hesa Awal Kohistan	Khesa Dowan Kohistan	Kobhan	Nejab
Faryab		Qurghan	Khowaja Sabzposh	Gurzewan	Seren Tajab
Wardak		Chak	Jarlrez	Hesa Behsod	Sayed Abad

Table 1.4: Demographics and Health System Characteristics (Pilot Sites, 2010)

PROVINCE	BADAKHSHAN	FARYAB	KAPISA	WARDAK
Population Characteristics (by Province)				
Total Population	823,000	858,000	399,000	540,000
Rural	96%	89%	99%	99%
Female Literacy	22%	22%	23%	10%
Overall Health Systems Characteristics (by Province)				
BPHS Financing Mechanism	USAID	World Bank	MOH	USAID
BPHS Implementing Organization	CAF for all Districts	CAF (HH) AADA (CH) SAF (Combined) CHA (Control)	-	SCA for all Districts
Hospitals	2	3	2	4
CHC	14	16	8	9
BHS	34	21	16	26
Health Posts	387	688	153	176
Population Characteristics and Availability of CHWs (by District)				
Household Arm	Teshkan	Qurghan	Hesa Awal Kohistan	Chak
Number of Villages	56	13	83	227
Population	37110	29001	97411	93596
CHWs	26	40	86	19
CHW Arm	Shuhada	Khowaja Sabzposh	Hesa Dowan Kohistan	Jarlrez
Number of Villages	68	35	62	117
Population	31,610	47,677	43,232	51,933
CHWs	14	79	48	No Data
Combined Arm	Keran	Gurzewan	Kobhand	Hesa 1 Behsod
Number of Villages	32	25	99	181
Population	11,243	72,821	40,730	57,833
CHWs	14	64	40	37

Control		Khash	Seren Tajab	Nejab	Sayed Abad
Number of Villages		19	90	150	131
Population		20,413	84,441	No Data	No Data
CHWs		22	90	142	No Data

HH = Household Arm; CHW = CHW Arm, Combined = Combined Arm

* Author's compilation based on 2010 Ministry of Public Health Data

Figure 1.3: Map of Pilot Provinces

Figure 1.4: Map of Pilot Districts – Badakhshan

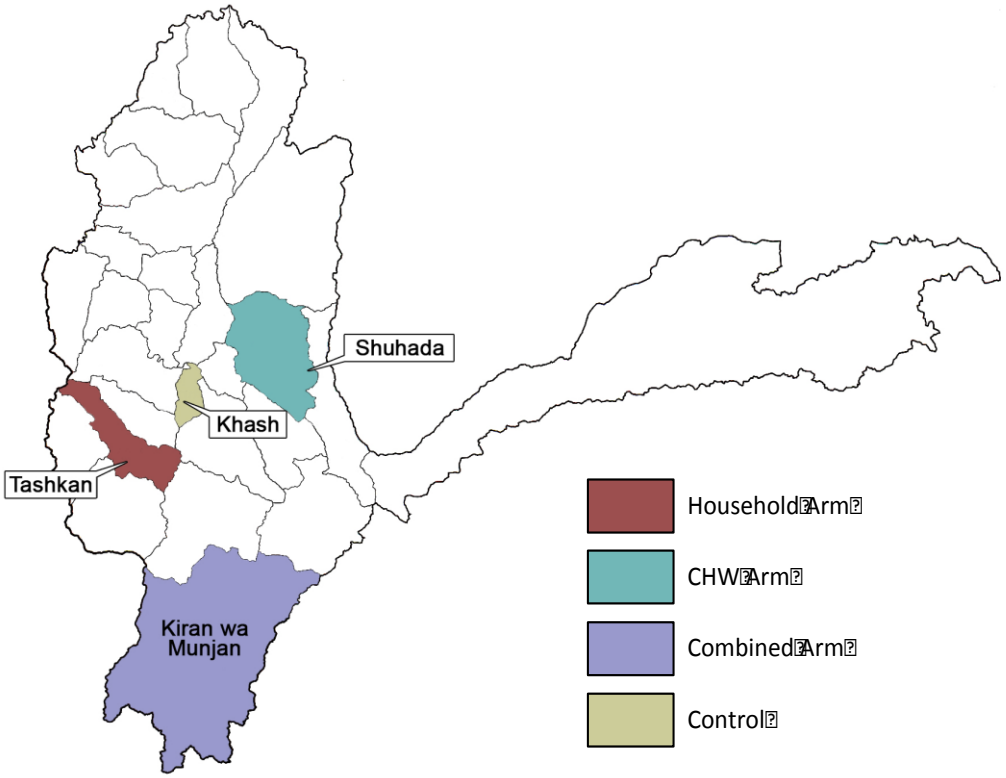


Figure 1.5: Map of Pilot Districts – Wardak

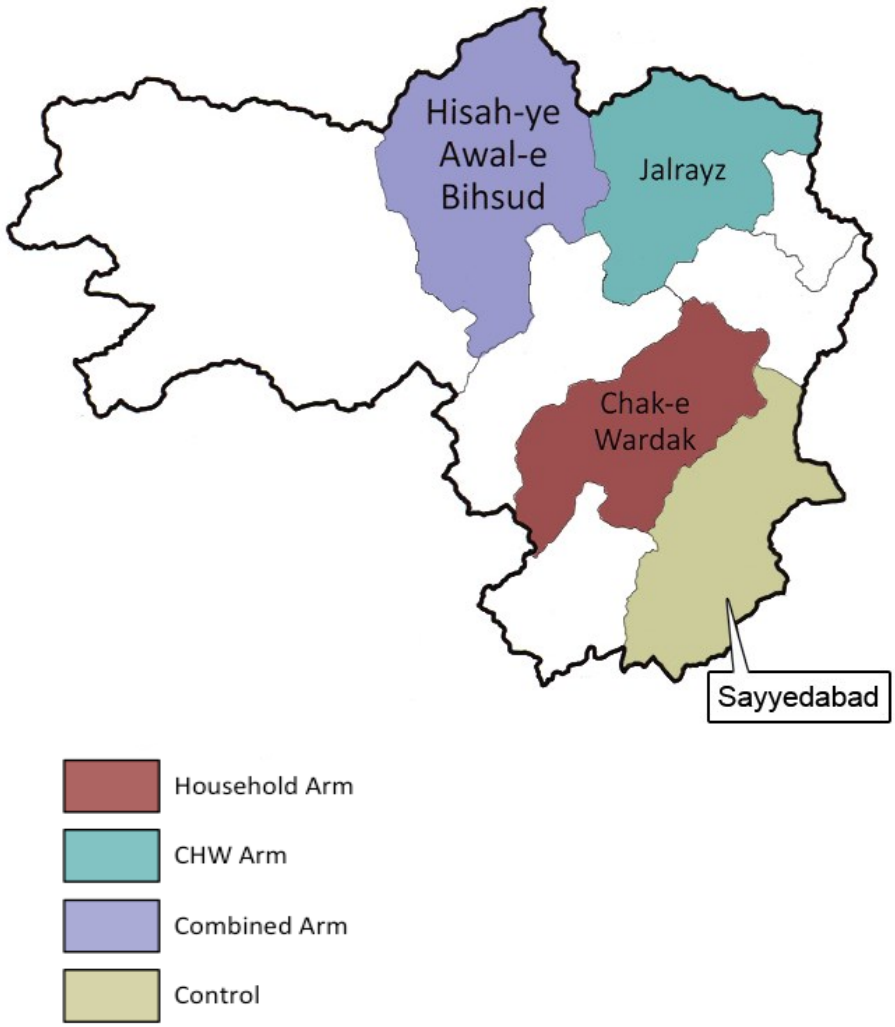


Figure 1.6: Map of Pilot Districts – Faryab

Figure 1.7: Map of Pilot Districts – Kapisa

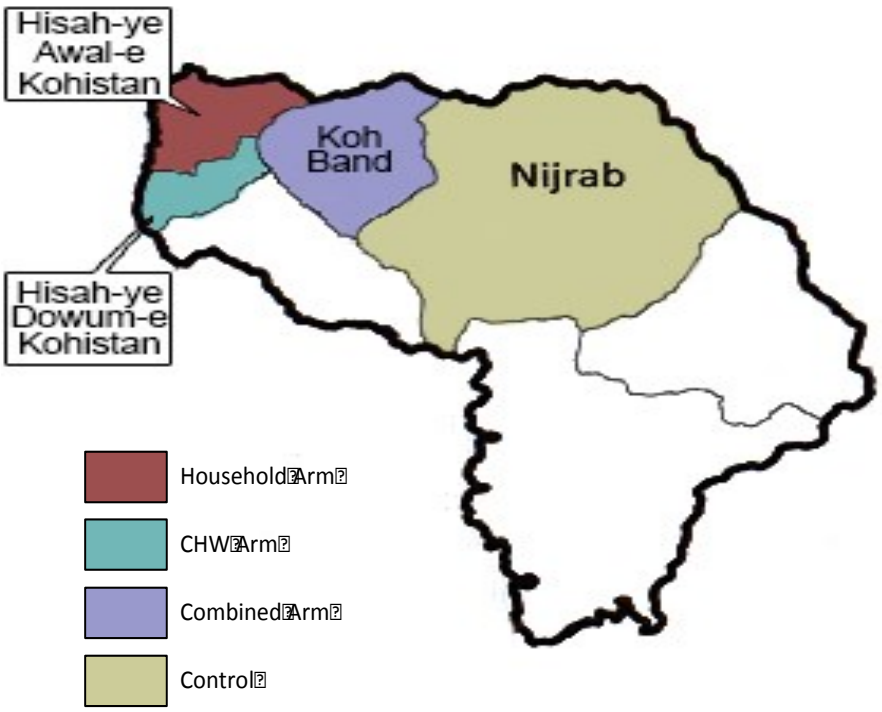


Table 1.5: Types of Health Facilities, by Province and Intervention Arm

Arm	Province	Type of Health Facility		
		Basic Health Centers	Comprehensive Health Centers and Comprehensive Health Centers Plus	District Hospitals
Control	Kapisa	3	1	1
	Wardak	5	1	1
	Faryab	1	2	
	Badakhshan	1		
Household	Kapisa	1	3	
	Wardak	3	1	1
	Faryab	1	1	
	Badakhshan	1	1	
CHW	Kapisa	2	1	
	Wardak	2	1	
	Faryab	1	1	
	Badakhshan	1		
Combined	Kapisa	1	1	
	Wardak	4	1	
	Faryab	2	1	
	Badakhshan	1		
Total		30	16	3

Table 1.6: List of Key Organizations and role in the CCT pilot

Name of Organization	Acronym	Role
Broad Branch Associates	BBA	*Evaluation:* Broad Branch Associates was part of the HS 20/20 team. A consultant from BBA assisted with stakeholder discussions. Her notes and analysis were used as part of the qualitative research
Deloitte Consulting		*Evaluation:* Deloitte Consulting was part of the HS 20/20 team. I was hired by Deloitte Consulting to assist the Ministry with the CCT project.
GAVI – the Vaccine Alliance	GAVI	*Financing and Design:* GAVI HSS grant funded implementation of the CCT project and the quantitative evaluation (baseline and endline surveys)
Health Systems 20/20 (USAID)	HS 20/20	*Financing:* A USAID-funded project on health systems strengthening. HS 20/20 consultants were engaged to assist MoPH on a range of health system projects, including evaluation of the CCT
Health Economics and Financing Department	HEFD	*Oversight:* HEFD, a department within the Ministry of Health. HEFD managed the implementation and evaluation of the CCT project
Hope World Wide	HWW	*Implementation*: HWW implemented the program and conducted the quantitative evaluation.

Chapter 2: Literature Review

The following literature review provides an overview of developments in maternal health and child immunization, and presents evidence on the effectiveness of using financial incentives to improve service utilization.

2.1 Progress in Maternal Health

Worldwide, approximately 342,900 maternal deaths occur each year in six countries—India, Niger, Pakistan, Ethiopia, Democratic Republic of Congo, and Afghanistan—accounting for over half of all maternal deaths.[42] While the timing and cause vary, women are at the highest risk of dying during the first 48 hours after delivery from causes related to intra- and postpartum complications, including hemorrhage, sepsis, eclampsia, and obstructed labor.[43] Evidence suggests that when resources are available, skilled delivery is associated with a reduction in maternal risks and is a cost-effective intervention to reduce maternal mortality.[44]

The Safe Motherhood Initiative (SMI) in 1987 was perhaps the first, large-scale global effort to ensure women's have access to high quality care throughout pregnancy and after birth. A major emphasis of SMI is to ensure the presence of skilled birthing attendants (SBAs) at the time of birth.[44-46] These are health professionals who have been educated and trained to proficiency in the skills needed to manage normal delivery, and in the identification, management and referral of complications. Evidence shows that delivery in the presence of SBAs is an effective strategy to reduce MMR.[44]

The Millennium Declaration (along with the Millennium Development Goals, or MDGs) further ensured that reduction of the Maternal Mortality Ratio (MMR) stayed on policy agendas. MDG 5 calls for a reduction of MMR by three–quarters from 1990 to 2015. In 2006, The Lancet published a landmark series of articles that provided evidence for maternal care and financing of services. One key message of the series is that the best strategy for reducing maternal mortality is to ensure that women deliver at a health care facility, in the presence of an SBA, and with easy access to emergency obstetric services. [47]

Despite the policy push toward increasing access to institutional delivery, progress has been slow. According to the 2013 MDG Report, the proportion of births assisted by skilled personnel only increased by 10% over a ten-year period, from 55% in 1990 to 66% 2011. Wide regional disparities persists: from near-universal coverage in Eastern Asia and the Caucasus and Central Asia (100% and 97%, respectively) to a low of 50% observed in Southern Asia and sub-Saharan Africa, the regions with the highest levels of maternal mortality.[48]

Studies have shown that while lack of knowledge is a major barrier to access, structural and human resource barriers—including difficulty accessing health facilities, limited availability of SBAs, and poor financial access—all play a role in the limited gains in increasing assisted delivery in South Asia and sub-Saharan Africa.[49-56]

2.2 Determinants of Skilled Delivery

At the individual and household levels, a range of factors, including maternal education, age, parity, and social economic status are found to be associated with uptake of skilled delivery.

Among the factors mentioned, the link between education and skilled delivery appears to be the most consistently observed. In contexts as varied as Bangladesh, Tajikistan, Indonesia, India, and Cambodia, maternal education is shown to be positively associated with the presence of a skilled birthing attendant at delivery.[53, 55, 57-59] Similarly in Afghanistan, Afghan women who have attended school were almost twice as likely to utilize maternal services, including antenatal care and facility-based delivery according to the Afghan Health Survey. [2]

Age is another factor that is associated with utilization of maternal services. Unlike education, this association appears to be context dependent. For instance, a literature review conducted by Gabrysch and colleagues found ample evidence that utilization of a skilled birthing attendant increases linearly with age [60], while other studies found the opposite: younger women are more likely to access skilled care than older women.
In Afghanistan, studies found that age appears to be a predictor of both skilled birthing attendant and facility-based delivery. According to a household survey analysis conducted in 2004, researchers found that, compared to women younger than 30 years of age, women between ages 30 and 39 have lower odds of using skilled birthing attendants

and for institutional delivery, while women younger than 20 years of age are more likely to deliver at a health facility.[22]

Another consistently observed association in Afghanistan for institutional delivery is the one between wealth and maternal care. According to findings from AHS, women in the lowest wealth quintile are five times less likely to give birth at a health facility. The finding is consistent with results from multiple studies conducted over the past decade.[22, 61, 62] In part, the association between wealth and service utilization may be due to the high cost of transportation, particularly in rural areas. Indeed, compare to women in the urban areas, respondents in rural areas are 3 times less likely to receive prenatal care.[2]

2.3 Progress in Child Vaccination

Immunization is one of the most cost-effective interventions to prevent child mortality. In 1974, the World Health Organization (WHO) launched the Expanded Program on Immunization (EPI) in an effort to vaccinate children against common childhood diseases, including measles, diphtheria, tetanus, polio, tuberculosis, and pertussis. According to the WHO guidelines, children under the age of two are recommended to receive one dose of Bacillus Calmette-Guerin (BCG), three doses of diphtheria-pertussis-tetanus (DPT), one dose of measles vaccine, three doses of oral polio vaccine, three doses of hepatitis B vaccine, and three doses of Haemophilus Influenza type b (Hib) vaccine. [63]

Since the launch of EPI, concerted efforts by governments and development partners have led to notable progress. Coverage of DPT3 vaccination is often used as a proxy indicator for full immunization, and has increased threefold since 1980, from less than 20% in 1980 to an estimated 78% in 2011.[63] However, immunization coverage, particularly in developing countries, continues to lag behind, with several countries—Afghanistan, Angola, Central Africa Republic, Chad, Equatorial Guinea, Gabon, Niger, and Somalia—reporting DPT3 coverage below 50%.[64]

Barriers to immunization in general, and DPT3 in particular, are well documented. On the demand side, factors include limited knowledge and/or misconceptions about vaccines [43], and costs associated with visits to health clinics [65]. Socio-demographic factors, namely mother's education, gender, and distance from facility, have also been found to be associated with uptake of vaccines [66]. On the supply side, a poorly functioning supply-chain and limited availability of health professionals are associated with low coverage. [67]

In Afghanistan, the overall rates of DPT3 immunization are among the lowest in the world. According to the 2011 MICs survey, only 40% of children between 12 and 23 months of age received all three doses of DPT3.[19] In particular, two characteristics are associated with DPT3 vaccination in Afghanistan: family's economic status and distance to facility. In an analysis of the national household survey, Steinhardt et al. found that while 60% of children in the wealthiest households completed the full course of DPT vaccination, only 31% of those in the poorest households reported having received DPT3.

Her findings support earlier, smaller studies conducted by [68]. While immunization is offered free-of- charge to all Afghans, transportation costs and informal payments are theorized to influence a family's decision to bring their children to the health facility for the complete course of DPT vaccination.[69]

The second factor is distance to facility. In Steinhardt's study, she found that only 20% of children who live four hours or more from the nearest facility received DPT3, while nearly half (47.6%) of children living less than half an hour from the nearest facility were immunized for DPT3.[69]

Finally, an issue unique to countries in conflict is the effect of insecurity on immunization coverage. In 2003, Mashal et al. utilized GIS data to assess whether security has an impact on delivering immunization services. Not surprisingly, the study found that, while immunization coverage improved in more stable regions of the country, the rates remained stagnant in the southern region of the country, an area that has been in and out of Taliban control, despite the presence of a relatively large number of vaccinators and health facilities. [70]

2.4 Conditional Cash Transfer

Conditional cash transfer (CCT) is a type of demand-side financing scheme that provides cash to households when conditions are met. CCT programs were first introduced during the Latin America financial crisis in the late 1980s. Success in several large-scale projects has led to the increased popularity of CCT. According to a 2009 study conducted by the World Bank, there are at least 27 countries around the world that have incorporated

elements of conditional cash transfer in their social programs.[9, 71] Today, many countries in Latin America have moved from small-scale, proof-of-concept pilots to integration into mainstream social policy, providing financial assistance to millions of families. Other countries, such as Turkey, Bangladesh, Indonesia, Cambodia, India, and Malawi, have piloted programs. [32, 72-74]

Scope and design of CCT vary from country to country. Broadly speaking, CCT schemes fall into two general categories: as a replacement for unconditional transfers, and as a one –time incentive.[9]

In the first instance, CCT programs replace traditional social safety nets by adding conditionalities to obtaining benefits, which are often related to health and educational investments. Poor and vulnerable families that regularly receive financial subsidies from governments are now required to change certain behaviors in order to receive ongoing financial support. Some examples of the conditionalities are regular health checkups, school attendance, and job training. [74]

PROGRESSA in Mexico and Bolsa Familia in Brazil are two of the largest programs that exemplify this type of CCT. Both are implemented nationwide and in part, as a replacement of traditional social safety net programs. Evidence from extensive and robust evaluations of both programs shows that CCT are effective policy tool to encourage families to change certain behaviors. [75-80]

The second type of CCT is more narrowly focused and provides cash incentive for a specific, often one-time, activity. India's Janai Suraksha Yojana (JSY), El Salvador's Comunidades Solidarias Rurales, and Nepal's Safe Delivery Incentive Program (SDIP) provide a one-time payment to mothers who deliver at a health facility [31, 32]; Tanzania's RESPECT pilot program offers cash incentives to young people after each negative sexually transmitted disease test.[81] And in Myanmar, the government is piloting a CCT project to reduce dropout rates for Multidrug Resistant TB patients.[7]

This broad-stroke description of the two types of CCT programs certainly does not cover all the variations in designs and ways in which governments, development partners, and implementers utilize cash incentive to motivate behavioral change. However, irrespective of design, there appears to be consensus that CCT is most effective when governments and/or implementers have the ability to provide the services; have the capacity to verify fulfillment of cash incentive criteria at limited cost; and have mechanisms in place that easily transfer money to the population. [9, 32, 82]

CCT for Institutional Delivery

While empirical evidence on the use of CCT to increase facility-based delivery is emerging, knowledge about the effect of cash transfer on institutional delivery remains scant. For this literature search, I found two evaluations of programs that conditioned cash payment on institutional delivery, and one evaluation of a program in El Salvador that assessed the *indirect* effect of CCT on institutional delivery. [56, 74, 83]

Of the programs that provide direct conditionality to encourage institutional delivery, the most promising results came from India's Janani Suraksha Yojana (JSY) program. JSY is a nationwide program that provides a one-time cash incentive to women and community health workers for delivering at a government -approved health facility. Lim and colleagues analyzed two rounds of District level Health Facility Surveys to examine the impact of CCT on outcome (skilled birth delivery) and impact on health status (MMR). His team reported a wide range of results across different states – from a 5% increase in institutional delivery to an impressive 44%. However, no impact was observed on the maternal mortality ratio.[3]

The other study, Nepal's Safe Delivery Incentive Programme (SDIP) also aims to use cash incentives to increase institutional delivery. SDIP provides cash incentive to women giving birth in a health facility, as well as to health providers for each delivery attended, either at home or the facility. An impact assessment, conducted by Powell-Jackson and Hanson, concluded that the program had a minimal but positive effect on facility-based delivery among women who have heard of SDIP. The authors also noted that the treatment effect was positively associated with (1) the cash amount offered by the program and (2) the quality of care provided at the facility. [52]

Finally, in the study conducted by de Brauw and Peterman, the authors found strong and robust indirect impact of El Salvador's CCT program Comunidades Solidarias Rurales (CSR) on hospital delivery. This program does not provide incentives for hospital deliveries; rather, payments are conditional on prenatal visits, growth monitoring, and

school attendance. The authors found increases in delivery at a facility between 15.3% and 22.8% in hospital delivery among program participants. [84]

While I did not find additional peer-reviewed articles on the effect of CCT on institutional delivery, a search of gray literature suggests that CCT schemes are being piloted in a number of countries, including Haiti, Myanmar and Mozambique. In Mozambique, the World Bank piloted a CCT program that offered women who are in their 8th month of pregnancy financial incentives as well as room and board to a nearby hospital. While the researchers reported positive trends in service utilization, the program was not sustainable given the high cost of program implementation. In Haiti, the government is piloting a CCT program that uses mobile money as the payment mechanism. The program is in the early stages of implementation, and to date, no results have been released. Finally in Myanmar, Save the Children is piloting a CCT scheme for emergency maternal referrals. The program is in the design phase and will be implemented in 2016.

It is interesting to note that all three countries mentioned above are considered post-conflict or fragile state by international agencies including the World Bank and the United Nations. This reflects a growing interest among policy makers and development partners to test the effect of CCT as a mean to change behaviors in post-conflict settings. Though, more evidence is needed to better guide policy makers in deciding if CCT is the right intervention for this challenging context.

CCT for Immunization Coverage

While none of the programs reviewed condition payment specifically on DPT3 vaccination, some of the CCT programs mentioned below require that children receive full immunization coverage and/or attend regular health check-ups, which incudes regular vaccination. Below, I provide evidence from three country programs on the effect of CCT on coverage of vaccinations.

Among the first programs to incentivize families to bring their children into the health facility for vaccination is Programa de Asignacion Familiar, a CCT program in Honduras that has been active since 1998. Through the program, families that meet certain economic pre-conditions receive on average $17 USD per month if the children attend school on a regular basis and have regular health check-ups. While DPT vaccination was not specified as a pre-condition, it is routinely given during health check-ups for children between 12 and 24 months. In an evaluation study, Morris et al. reported a slight increase in the first dose of DPT vaccination. However, the paper does not report progress in completing full course of DPT vaccine. [16]

In Mexico, Barham et al. used the randomized design in Oportunidades to estimate program effects on coverage of tuberculosis and measles immunization rates. Small, positive effects were observed for uptake of tuberculosis vaccination rates for children under 12 months and for measles vaccinations for children between 12 and 23 months within the first six months of program implementation. However, no evidence of change was observed after 12 months of program implementation. One explanation provided by

the author for observing a small increase is that the immunization rate was already high (above 90%) before program began. [85]

In Nicaragua, Barham and Maluccio used program data collected two years after implementation of the CCT program to investigate the effect of a CCT program on immunization coverage. *Red de Proteccion Social* (RPS) began in 2000, and conditioned payment for health on a range of preventive visits, which included full immunization for the children under 2 years of age. The authors found a 6.1% increase in full immunization among 12 – 23 month olds. [86]

2.5 Conditional Cash Transfer Projects in Conflict and Post-Conflict Settings

Post-conflict may be defined as the transitional phase between the end of a conflict and establishment of a recognized, stable government. Hamstrung by political challenges, weak governing mandates, and limited finances, governments in post-conflict settings often cannot provide core functions to the population. [106]

In my literature search, I found one peer-reviewed study in post-conflict settings. Powell-Jackson and colleagues evaluated Nepal's CCT program, which provided cash incentives to women to deliver at a health facility. As described above, Powell-Jackson and colleagues found a small positive treatment effect among women who have heard about the program. However, he noted that coverage of the program was low and there were many systemic issues with program implementation including unclear guidelines on targeting and delays in payment.

Due to the complexity of, conditional cash transfer programs, which require availability of services as well as adequate financial infrastructure as well as management skills, it is not surprising that few CCT programs operate in post-conflict settings. Indeed, in a review of financing mechanisms in post-conflict settings, Witter noted that supply-side challenges is likely to be one of the reasons that there are limited CCT schemes in conflict and/or post-conflict countries. [88]

Table 2.1: Effect-Sizes of CCT programs on Institutional Delivery and Immunization

Country	Program Name, Reference	Target Population	Cash Transfer Amount	Health Conditionalities	Additional Interventions In Health	Effect Size
India	Janani Suraksha Yojana [3]	Nationwide - Pregnant woman belonging to poorest households, aged older than 19 years, and for the first 2 births	Rs 700 (~10 USD) rural areas Rs 600 (~ 9 USD) urban areas	• Antenatal and postnatal visits • Institutional Delivery	In some states, accredited health workers are given Rs 700 (~ 9 USD) in rural areas and RS 200 (~3 USD) in urban areas	0.435 (P<0.05)
Nepal	Safe Delivery Incentive Programme [52]	Nationwide - Pregnant woman with no more than 2 living children or have an obstetric complication	NRs 1500 (~ 14 USD) mountain areas NRs 1000 (~9.6 USD) hill areas NRs 500 (~4.8 USD) lowlands	• Institutional Delivery	NRS 300 (~ 2.9 USD) for SBA NRS 1000 (~9.6 USD) for facilities	0.04 (P<0.05) Among women who have heard of SDIP Program
El Salvador	Comunidades Solidarias Rurales [84]	Geographic targeting- all households in the selected municipalities with children between 6-15 years of age living in the house	~ 15 USD/month (health only) ~20 USD/month (health and education)	• Growth monitoring • Vaccination • Prenatal Visits • Additional education subsidy	Supply side improvement in water, sanitation, and health facility infrastructure	0.153 (P<0.10)

Country	Program Name, Reference	Target Population	Transfer Size	Health Conditionalities	Additional Interventions in Health	Effect Size
Honduras	Programa de Asignacion Familiar [16]	Geographic and proxy means targeting: poor families with children aged 6 - 12 who have not completed grade 4, and poor families with pregnant woman and/or children <3	Lempiras 55/ month (~ 17 USD/Month) on average - Health Additional incentives for education	• Regular health check-ups • Additional education subsidy		DPT1 (6.9***) No evidence of change for measles vaccine among children under 3 (-0.2)
Nicaragua	Red de Proteccion Social [86]	Geographic targeting: 42 communities in 6 poor rural districts	Health: $37 every 2 months	• Regular health check-ups for children under 2 years of age • Health educational workshops • Weight monitoring • Additional education subsidy	Private health providers contracted to provide services	6.1% increase in full immunization among 12 – 23 month olds.
Mexico	Progresa (renamed Oportunidades) [87]	Proxy means targeting	US$20 on average	• Regular health check-ups and immunization • Health education and antenatal care for pregnant women • Additional education subsidy	Children received nutrition supplements	TB Vaccination: 5.2% increase Measles vaccination: 3.0% increase

Chapter 3: CCT Rational and Study Framework

Rationale of the CCT program

Direct Cash Incentives to Households

Like many CCT interventions, the design of the pilot is based on the assumption that households under-invest in maternal and child health. Reasons for under-investment are many and varied. For some households, decision makers may not be aware of the benefits of accessing services, particularly for preventive health such as immunization and antenatal care, where benefits may not be immediately realized. For other households, the reason may be financial. Households may not have the means to pay for transportation and other costs frequently associated with accessing care. CCT projects attempt to alter these cost-benefit calculations for some, and provide financial means to access care for others. [31, 32]

According to the Afghan government's health systems strengthening program application to GAVI, the rationale for the CCT project is to change perception and behavior among households. Afghanistan's GAVI application states: "Demand-side financing may be useful in overcoming socio-cultural obstacles that impeded the use of the services, especially by women. It is envisaged that this is a short-term solution that will only be required until women are convinced of the value of the services." [33]

Cash Incentives to Community Health Workers (CHWs)

In addition to cash incentives to households, Afghanistan's CCT pilot included an intervention arm that tested the effects of incentivizing CHWs on service referrals. Much like CHWs in many other countries, CHWs in Afghanistan are volunteer health workers who do not receive financial compensation. MoPH encourages communities and programs to utilize non-financial incentives, such as recognition, training, and career advancement opportunities to reward and motivate CHWs.

In Afghanistan, the MoPH, in collaboration with development partners have trained and deployed more than 20,000 CHWs countrywide by 2009. According to operational research conducted by JHSPH in 2007, only two thirds (67%) of BPHS facilities have active CHWs. [34]

There has been a long-standing debate within the MoPH on whether or not to provide financial incentives to CHWs. Increasingly, the argument leans toward providing CHWs with financial incentives and integrating the CHWs into the formal health cadre. Reasons given include: increased responsibilities that CHWs have in providing services, critical role that CHWs play in linking community's needs with available services, and a need to improve retention among CHWs. However, others contend that the MoPH does not have the financial resources to incorporate CHWs into the health cadre.[34-38]

Despite MoPH's policy on not paying CHWs, many CHWs do receive compensation from other, non-government funding sources. According to interview with staff from MoPH, there were at least 10 programs that provided some incentive to CHWs in 2010;

some programs paid monthly stipends, while others, similar to the CCT project, conditioned payment on meeting set targets. In Helmand, for instance, CHWs were paid for number of children fully immunized, number of mothers who delivered at the health facility and the number of tuberculosis cases detected. [34]

Cash Incentives to CHWs and Households

The combined arm of the CCT project provided incentives to both households and CHWs. The Ministry hypothesized that in order to increase service utilization, both components were needed. CHWs provide the critical link between health facilities and communities, and education to the households about the benefits of the services provided as well as the CCT program. It is also speculated that knowledge alone is not enough to increase utilization. Considering the low level of income in rural Afghanistan, most households require financial assistance to pay for transportation and the additional cost associated with accessing care.

Evaluation Framework

Figure 3.1 presents the evaluation framework used to guide the study. The framework is adapted from the Integrated Management of Childhood Illness (IMCI) strategic evaluation framework developed by the Institute for International Programs (IIP) at Johns Hopkins University Bloomberg School of Public Health (JHSPH), and simplified to suit the purpose of this study. The framework also incorporates concepts and approaches described in Peters and colleagues' book titled "Implementation Research in Health, A

Practical Guide" in which the authors provide an overview of implementation research and suggest possible approaches and tools. [88]

Broadly stated, implementation research describes "scientific inquiry into questions concerning implementation—the act of carrying an intention into effect, which in health research can be policies, programs, or individual practices (collectively called interventions)."[89] While the term encompasses a wide range of research topics and methods, the goal is similar: to help policy makers and program managers understand why an intervention worked (or not), and the mechanisms that influenced the outcome. Implementation research is closely linked to monitoring and evaluation (M&E), but they are not necessarily the same. Monitoring, when the primary focus is routine reporting of the program is typically not considered implementation research. However, monitoring using scientific methods to answer implementation research question is considered one type of implementation research.

Moving from the top (design) to the bottom (outcomes) of the framework, the pathway outlines the relationship between design, implementation, and output. Given the short timeframe of the pilot and limitations posed by a post-test only study design (further discussed in the limitations section of Chapter 7), I did not assess the impact of the program on health outcomes.

In particular, for this study I hypothesize that the starting point of a successful program is appropriate program design, which takes into account (1) acceptability of the pilot

program to the key stakeholders, and (2) feasibility of implementing the pilot program in the selected areas. As such, I focus on these two domains in assessment program design.

Sound design alone, however, is not enough to ensure positive program outcome; effective implementation of the program is just as important. In this study, I explored three implementation factors: technical capacity of the implementing organization, cash transfer process, and program communication.

For the first implementation factor – capacity of the implementation organization – I focused on assessing technical and managerial capacity of Hope World Wide (HWW), the implementing agency. HWW was responsible for developing implementation strategy based on MoPH and GAVI's program design, supporting partner organizations (in this case – health facilities) in the implementation process, and monitoring progress on an on-going basis in order to adjust course when necessary. In addition, HWW was responsible for conducting the program evaluation with the objective of providing the MoPH with evidence of program effect. The organization play an important role in how the program was implemented and influence the outcome of the program.

The two additional aspects of implementation evaluated in this thesis are (1) management and disbursement of cash and (2) communication to community members. These two factors were selected for a couple of reasons. First, effective implementation of a CCT program hinges on end-users knowing about the cash incentive program as well as timely disbursement of cash. Without effective implementation of both, it is difficult for a CCT

program to have the desired effect on service utilization. [4, 8, 90] Second, one of the themes that emerged during the data collection process is the wide variations among health facilities in cash payment and communication about the program. This indicates that the health facilities played a large role in how well the program was implemented on the ground. Further understanding of how health facilities managed the implementation process may contribute to future design and planning of cash transfer projects in Afghanistan.

Finally, I used quantitative methods to test the following program output hypothesis:

Control Arm vs. Household Arm	Hypothesis 1a: Compared to women who live in control districts, women who live in districts that offer incentives to households have higher odds of delivering at a health facility.
	Hypothesis 1b: Compared to women who live in control districts, women who live in districts that offer incentives to households have higher odds of having children who received DPT3 vaccination.
Control Arm vs. CHW Arm	Hypothesis 2a: Compared to women who live in control districts, women who live in districts that offer incentives to CHWs for each completed referral have higher odds of delivering at a health facility.
	Hypothesis 2b: Compared to women who live in control districts, women who live in districts that offer incentives to CHWs for each completed referral have higher odds of having children who

	receive DPT3 vaccination.
Control Arm vs. Combined Arm	Hypothesis 3a: Compared to women who live in control districts, women who live in districts that offer incentives to both CHWs and households have higher odds of delivering at a health facility. Hypothesis 3b: Compared to women who live in control districts, women who live in districts that offer incentives to both CHWs and households have higher odds of having children who receive DPT3 vaccination

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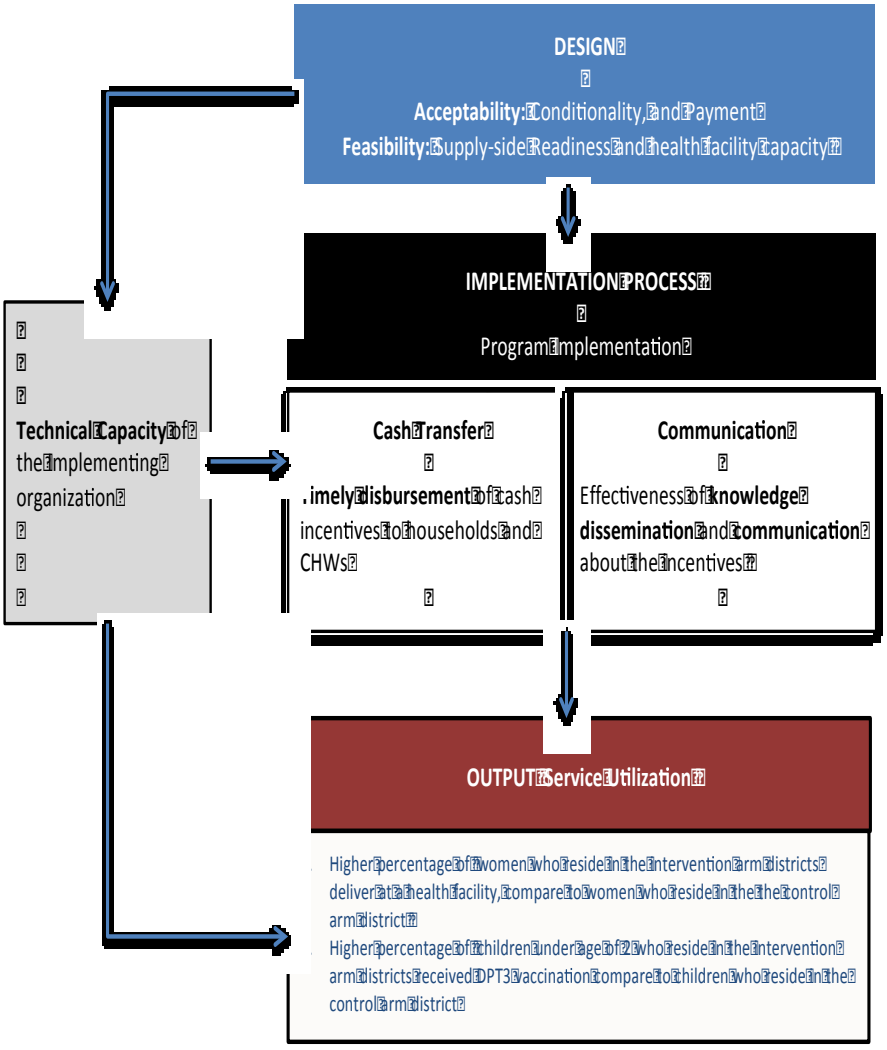
Figure 3.1: Evaluation Framework



Chapter 4: Methodology

4.1 Mixed-Methods Approach

A mixed-methods approach was employed to assess the CCT pilot program. This study approach was selected for a couple of reasons. First, the research questions in this study are best answered using both qualitative and quantitative data. The quantitative data provide insights into the overall effect of the program as well as variations among villages, while the qualitative data provide context and a more nuanced understanding of how the program was implemneted. In particular, I explored acceptability of the program by the stakeholders and feasibility of implementing CCT for institutional delivery and DTP3 vaccination in selected districts. As well, I described how program was implemented at the heath facility level and variations in implementation approach. Second, using both qualitative and quantitative method to evaluate the CCT program allow for triangulation of data. This is particularly useful in conflict-settings, when often it is not possible to return to the data collection sites to validate findings. In Afghanistan, this was certainly the case. With the exception of interviews conducted in Kabul, I was not able to follow- up with interviewees for clarification and/or follow-up discussions.

In this study, quantitative and qualitative data were collected in parallel and integrated, or 'mixed', during the analysis stage with the goal of obtaining "different but complementary data on the same topic for the research question" [91]. Qualitative data was collected over a one-year period, from January 2011 to February 2012, while quantitative data was collected between April and June 2011. Findings were integrated in

the analysis stage, with equal emphasis given to data collected through quantitative and qualitative methods. **Table 4.1** provides a description of all data sources and research questions answered by each data source.

4.2 Data Sources

Quantitative Data

MoPH and HWW conducted an endline household survey to assess the association of conditional cash transfer with the outcome of interest: coverage of DPT3 vaccination and institutional delivery. The following section describes key elements of data collection, including sampling, the survey instrument, data collection and the input process, and quality assurance.

Sampling

A multistage sampling method was used to select 6,130 women between the ages of 15 and 49 who gave birth to at least one child between July 2009 and March 2011, and resided in one of the study districts at the time of interview. Sampling occurred in three stages. First, a sample of villages was selected in each of the four districts with probability proportional to size (PPS). Then, a sample of households was selected from each village. The survey team (HWW) did not have the capacity and resources to conduct household enumeration; instead, the team interviewed every fifth house, starting from a pre-designated landmark (usually school or government office) in each direction (i.e., North, South, East, West) until the predetermined number of households for the village was reached (between 13 and 15). Finally, one eligible respondent was selected at

random in each household using a draw-card method. All eligible respondents from the selected household were asked to draw a card from a box, and the individual who drew the card marked 'survey participant' was invited to participate in the survey.

The sample size was calculated to detect a 5% difference between control and intervention districts using the following parameters: institutional delivery rate of 15 per 100 births at baseline, design effect of 1.5, and a 5% non-response rate (**See Table 4.2**). Due to deteriorating security in Wardak and parts of Faryab provinces, 15 villages in our sampling frame were replaced through a random selection process. An additional 125 interviews were conducted. In total 6,255 women participated in the study.

Household Survey Instrument

The design of the questionnaire was based on the following sources:

1) A Household survey developed by the Johns Hopkins Bloomberg School of Public Health (JHSPH) for the Results Based Financing (RBF) Project
2) UNICEF's Multiple Indicator Cluster Survey (MICS)
3) Evaluation tools used in Mexico's CCT program, *Oportunidades*

The endline household questionnaire consists of two parts: a Household Questionnaire and a Woman's Questionnaire. The Household Questionnaire was used to list all the household members and to identify eligible women for the individual interview. For each member of the household, the team collected basic information, including age, sex, and relationship to the head of the household. In addition, information on characteristics of

the household's dwelling unit, including type of toilet facilities, materials used for the roof and flooring, and ownership of assets were collected, and used to develop the wealth quintile.

The Woman's Questionnaire was used to collect information from married women ages 15-49 who had given birth between July 2009 and March 2011, on their age, education, ethnicity, pregnancy history, birthing history, survival status of their children, children's vaccination, perceived security, perceived distance to facility and health service utilization. For the outcome measures, women were asked where they gave birth (home or health facility) for children born between July 2009 and March 2011. Women were also asked whether their children under the age of 2 had received the third dose of DPT vaccination.

Finally, for women in the household and the combined arm who were aware of the conditional cash transfer project and either delivered at a facility and/or brought their children for DPT3 vaccination, additional questions were asked about their decision-making process, the amount they received, and whether the cash incentive played a role in their decision to utilize services.

Data Collection and Data Input Process

From April to May 2011, the HWW team conducted the endline household survey. Each field team consisted of 3-5 staff and one field supervisor who was responsible for ensuring that protocols were followed and survey forms were completed. When possible,

survey forms were sent to Kabul on a bi-weekly basis. Issues, such as errors, and lack of completeness with the survey forms noted during data entry, were discussed at the weekly supervisors' meeting. Often, surveyors were not able to return to the household for additional clarification due to security issues or remoteness of the village. Instead, identified problems were used as a learning opportunity and basis for small group or one-on-one trainings to improve data quality.

A team of 15 staff, supervised by HWW, entered the data into an Access database. The database has features that flag conflicting information and other possible data entry issues. Due to budget and time constraints, double-entry was not possible.

Quality Assurance

Questionnaires were pre-tested with 64 individuals in Kabul. The purpose of the pre-test was to assess suitability of the questions, fine-tune the skip patterns and wording of the questions, and assess the length of the interview. Based on feedback from the pre-test, three questions were rewritten and two questions were removed from the survey. Once the questionnaire was finalized, MoPH conducted a one-week training for 25 surveyors. During the training, the surveyors were given an overview of the study, had opportunities to practice the questionnaire, learned how to fill out the survey forms, and discussed fieldwork logistics. A second, two-day training was held by HWW on data entry, during which HWW provided training on the database and discussed the procedure for addressing data quality issues.

Qualitative Data

To better understand stakeholder perspectives of the CCT program and how the program was implemented in different districts, the team collected data from several sources, including:

- Qualitative Data Source 1-3: 96 interviews with stakeholders
- Qualitative Data Source 4: review of pilot documents (GAVI and HWW proposals) and HWW's quarterly technical reports (24 documents in total)
- Qualitative Data Source 5: rapid assessments of purposively sampled health facilities (9 health facilities)

Sampling, data collection tool, quality assurance, and staffing for each phase of data collection are further described below.

Data Sources 1-3: Discussions and In-depth Interviews

The team conducted interviews and guided discussions with 96 participants over a one-year period between January 2011 and February 2012. Along with colleagues from Deloitte Consulting, Broad Branch, and MoPH, I conducted the first two sets of semi-structured interviews and discussions (Data sources 1 and 2). MoPH and SRTRO researchers conducted the final set of in-depth interviews in Faryab and Kapisa (Data source 3).

Data Source 1: Program Discussion

The first set of discussions occurred on January 19-20, 2011 (see **Appendix 3** for summary of discussions). Four participants including two staff members from

HWW and two from MoPH met with the study team over a two-day period. Participants were purposely selected because of their role in, and knowledge of, the CCT program. In particular, the two staff members from HWW who participated in the discussion were senior members of the management team and in charge of the CCT program, and the two participants from MoPH managed the CCT project. The discussions *were not* guided by a pre-determined set of questions. Rather, the team asked open-ended questions with the objective of learning as much as possible about the program design and implementation process.

Data Source 2: Key Informant Interviews

The second set of discussions occurred on June 4-13, 2011, with 23 participants (see **Appendix** for summary of discussions). The interviews were conducted by a consultant from Broad Branch and MoPH, and guided by a set of key questions developed from previous program discussions. I joined majority of the interviews as an observer.

Key informants interviewed include HWW staff, staff from the MoPH Maternal and Child Health (MCH) and Community Health departments, NGOs implementing BHS at the pilot districts, and other health sector stakeholders such as the World Bank (WB), JHPIEGO, and the European Commission (EC). Similar to the first round of discussions, interviewees were purposely selected to provide insights into the CCT program, particular on program design and implementation

strategy. With the exception of interviews with the World Bank, JHPIEGO, and EC, which were requested by the study team, the Ministry arranged all interviews. The interviews covered a number of implementation topics, including strategy for program implementation, stakeholders' perceptions of the program, and the expected impact of the program. These interviews were not tape-recorded. Instead, I took notes during the meeting. Findings were compared and discussed among members of the study team and presented to MoPH.

Data Source 3: In-depth Interviews in Kapisa and Faryab

The purpose of the final set of interviews in Kapisa and Faryab was to better understand how the program was implemented at the health facility level, how households perceived the CCT program, and how cash incentive may (or may not) have influenced the care-seeking process. Using two guides - one for households and one for implementing partners–a team of trained qualitative researchers conducted 62 in-depth interviews in Faryab and Kapisa provinces, and seven interviews with MoPH, NGO, and HWW staff in Kabul (69 interviews in total). In the field (Kapsia and Faryab) the team interviewed provincial health officers, health facility staff, community health workers, and members of households who were aware of the CCT program.

Table 4.3 provides a summary of interviews for Data Sources 1, 2 and 3.

Table 4.4 includes detailed descriptions of the interviewees for Data Source 3.

Sampling

This study utilized non-probabilistic convenience sampling method to select participants. This method does not aim to establish a random or representative sample drawn from a population, but rather to select participants who could provide information about how the program was implemented at the health facility level as well as overall perception of the program.

For data source 3, the following sampling decisions were made. First, the team purposively selected Faryab and Kapisa provinces, in part to reflect geographic and administrative diversity, and in part, for logistic and security reasons. At the time of the study several districts in Wardak were under Taliban control and deemed unsafe for data collection by the Ministry of Health program officers. Districts in Badakshan were inaccessible due to severe winter storms during the time of data collection.

Within Faryab and Kapisa, the team attempted to sample at least two health institutions in the intervention districts. Within each facility the team attempted to interview the health facility administrator, 1-2 health service staff that provide obstetric care, 1-2 vaccinators, and the facility staff (often the in-charge or head vaccinator) responsible for providing cash incentives. To the extent possible, the team tried to select participants to include a range of age and gender. However, in most health facilities, there was only one health staff in each category.

To get the perspective of end-users (CHWs and household members), the team attempted

to interview 3-4 community health workers per district, based on availability of CHWs on the day of the site visit. To identify household members who are familiar with the CCT program, the team sought CHWs' advice to identify participants. In advance of field visits, one team member from the research team contacted and coordinated with the CHW (or CHW supervisors) to identify household members and to seek their permission to participate in the study.

The final number of interviews (N=69) was decided based on the following factors: data saturation, budget, and timeline. During data collection, the field staff team held debriefing sessions at the end of each day. When possible, research team from Kabul would join the meeting by conference call. Together, the team decided when data collected from each category of stakeholders reached a saturation point. That is, no additional variations in practice were noted in the interviews.

Interview Guides

As mentioned above, the team did not use interview guides for the first two sets of discussions (Data Sources 1 and 2). For Data Source 3, two interview guides were developed. Interview guides for the program implementers were used to guide discussions with provincial health officers, health facility staff, CHWs, and CCT pilot implementers to better understand how the project was implemented at the health facility level; the context and environment in which the pilot program was implemented; and to get their feedback on the overall design of the pilot project. The interview guide for the

household was designed to explore household perceptions of the program, the decision-making process, and overall experience with the program.

The guides were written in English, translated into Dari, and back translated to English. Prior to implementation, MoPH officials reviewed the interview guide and provided feedback. Over the course of data collection, several questions were amended based on feedback from the data collectors. For instance, based on a review of the initial set of interviews, the team decided to drop questions about the interviewees' decision-making process and focus instead on program implementation. Furthermore, the team also added questions on DPT3 vaccination. After the initial set of interviews in Kapisa, it was apparent that more household members knew about cash incentive for DPT3 vaccination than for institutional delivery.

On average, interviews were 37 minutes in length, ranging from 13 minutes to 78 minutes (**see Table 4.4**). Discussions with HWW headquarters staff, MoPH, and stakeholders at the central level were conducted in English. These discussions were not tape-recorded but notes were taken during the meetings.

Verbal consent was obtained prior to interview (informed consent forms included in the **Appendix**) Most interviews in Kabul were conducted in English, and interviews in Kapisa and Faryab were conducted in Pashtun or Dari. With the permission of the interviewees, all interviews were electronically recorded. The taped interviews were

transcribed and translated into English. Interviewers also recorded voice memos of their reflections after each interview. Theses memos were also transcribed and translated.

Quality Assurance

For the in-depth interviews in Kapisa and Faryab, researchers from SRTRO collected the data. Three local researchers (two men and one woman) with experience in qualitative research were hired to conduct these interviews. Prior to conducting the in-depth interviews, the researchers participated in a week-long, refresher training on qualitative interview techniques. Selected members from MoPH also joined the training and accompanied the team for a few days during data collection in Kapisa.[3]

During the week-long training, local researchers learned about the study objective; practiced using the interview guides and the recording device; and discussed the study protocol and time frame for submitting completed memos. An experienced qualitative researcher who has managed large-scale studies in Afghanistan supervised the research team and was responsible for collecting program documents. Finally, I accompanied the study team on selected interviews in Kapisa.

Reflection of my role

This research study was part of a larger effort by the Ministry of Health to evaluate the CCT pilot project. I attended all the interviews in Kabul, and selected interviews in Kapisa. Study participants often viewed me, as well as other interviewers, as MoPH staff.

[3] MoPH staff joined in eight interviews in Kapisa province.

This is likely to affect some of our interactions, particularly with individuals who are ministry staff as well as health facility staff; respondents may be less open to discussing program challenges. To the extent possible, I triangulated the data by reviewing program documents and comparing interview findings with results from the household survey. Memos and tables were used to track key findings during this process.

Data Source 4: Document Review

The purpose of the document review is to better understand the implementation process, including implementation strategies that worked, well as well as challenges. The following project documents were collect from HWW and MoPH: nine quarterly technical reports; training and implementation guides; communication tools, including posters and information leaflets; and sample log book to track CHW referrals. All documents were either provided to me by MoPH or collected during the field visits.

Data Source 5: Rapid Health Facility Assessment

The purpose of the rapid health facility assessment is to gain a sense of supply-side readiness of health facilities to provide institutional delivery and DPT3 vaccination, and to implement CCT pilot deliver the interventions (institutional delivery and DPT3 vaccination). The study team conducted health facility assessments at nine facilities (see **Table 4.5** for a list of facilities). The assessment tool was adapted from JHSPH's Balanced Scorecard and focused only on the following areas: human resources, infrastructure, and overall availability (i.e., medicine and opening hours).[92] The assessment was conducted by a trained researcher who participated in the Balanced

Scorecard project and familiar with the tool. At the end of each health facility assessment, the form was reviewed and signed-off by either the health facility officer in-charge or the most senior staff member present at the health facility.

4.3 Analytical Methods

Quantitative Analytical Method and Rational for Method Selection

To address the first research question, I used mixed-effects logistic regression to simultaneously examine effects of village and individual level characteristics on program outcomes. Standard errors were adjusted for clustering at the village level using inverse probability weighting (IPW) as literature on service utilization in Afghanistan suggests that community level factors are likely to affect service uptake. [69, 93, 94, 95]

Statistical analysis procedure

Statistical analysis was conducted in two stages. In the first stage, I conducted exploratory data analysis (EDA) to assess the extent and pattern of missing data, frequencies, distributions, and outliers. Graphical tools were used to assess distribution of continuous variables and to explore frequencies for categorical variables. More details regarding treatment of missing data is described below. In the final analysis, I conducted compete case analysis, and excluded missing cases.

To examine association of the treatment as well as other individual and household level covariates with the dependent variables – DPT3 vaccination and institution delivery, I conducted cross-tabs and bivariate analysis. High intraclass correlation due to cluster level sampling of villages was adjusted in STATA. The final set of

predictor variables was selected based on conceptual framework informed by literature review.

Mixed-effects logistic regression was fitted using maximum likelihood estimation with adaptive quadrature to assess the association between treatment and program outcomes, accounting for individual and household level determinants, and variation among villages. In the final model, inverse probability weighing derived from propensity score was added to the model to reduce any selectivity bias due to non-random selection of the study arms. This model provides the best fit for the study as it allows for partitioning of the residual variation into two components: within-cluster and between cluster. Variance partition coefficient was used to assess the proportion of the residual correlation attributable to differences at the village level.

Description of measurements: individual and household level dependent variables

For the primary analysis, the outcomes of interest are (1) institutional delivery among women between the ages of 15 and 49, who have had at least one birth between May 2009 and May 2011, and (2) DPT3 vaccination of her children below the age of 2 at the time of interview.

Both outcome variables were dichotomized. For institutional delivery, a value of "0" is assigned for home delivery and "1" for institutional delivery. For DPT3 vaccination, a value of "0" is assigned for the child under the age of 2 who did not receive DPT3 vaccination, and "1" for the child under the age of 2 who received DPT3 vaccination

within the past two years. Mothers of the children below the age of two were only interviewed for vaccination coverage questionnaire.

It should be noted for the outcome of interest that respondents may have decided to obtain services independent of monetary incentives, and some may have received services at health facilities (public or private) that are not part of the CCT incentive program. Given the limited number of private facilities in rural Afghanistan, the latter was of less concern, with limited impact on the findings. The former—whether individuals accessed services because of the incentive program—is further explored in both the endline survey and the qualitative interviews.

Description of Measurements: Treatment Variables

The treatment variable is cash incentive. As described in Chapter 1, this study includes 3 incentive arm and 1 control arm. Separate analysis was conducted for each of the program outcome (DPT3 and Institutional Delivery). It is worth noting that the CCT program was not restricted to women who resided in the study districts. Rather, all women who utilized health facilities in the household and the combined arms were eligible to receive cash incentives. However, CHWs who did not work in the CCT pilot facility encashment area did not receive payments for referrals.

Description of Measurements: Independent Variables

The following covariates are included in the final model:

- Woman's age: Age of respondents was recorded in completed years and as

a continuous variable. A significant events calendar was developed to aid recall. In this study, women between the ages of 15 – 35 responded to the survey. Though difficult to ascertain, the truncation of respondents at age 35 is likely due to measurement errors. In the final analysis, I transformed the variable into four categories: 15 – 19 (reference), 20 -24, 25- 29, and above 30 years of age.

- Parity: Women were asked about number of times that she has given birth. Data was dichotomized to the following groups: women who have given birth to four or less children (reference), and women who have given birth to five and more children.

- Education: Women were asked about the highest level of education they had obtained. The following categories were created to measure education levels: No schooling; Primary (1-6); Secondary (7-9); High school (10-12); and College (13+). However, given the limited availability of educational opportunities for women in rural Afghanistan, data were dichotomized to "No schooling" and "Some Schooling".

- Socio-economic status: An asset index was constructed based on data collected on two main classes of consumption: (i) consumer durables, and (ii) housing. Fifteen items were included in the survey, with questions ranging from construction of the house to ownership of material goods

such as a mobile phone, radio, and number and types animals. Using the Principal Component Analysis (PCA) method a relative wealth score was calculated for each household. [96, 97] The households were then classified in one of five quintiles ranked from poorest to wealthiest.

- Travel time to health facility: Respondents were asked to estimate time of one-way travel, on foot, to the nearest health facility, and responses were recorded in one of the five categories: less than 30 minutes, 30-60 minutes, 1-2 hours, 2 hours-½ day, and longer than ½ days.

- Perceived Level of Security: To measure perceived level of security, respondents were asked whether they felt safe (or not safe) going to the health facility on a five-point Likert scale; 1 represented feeling insecure at all times and 5 represented feeling secure at all times. Preliminary analysis of the data showed that responses fell into two general categories: secure and insecure. As such, I transformed the data to a dichotomous variable, with 0 representing "feeling insecure" and 1 representing "feeling secure."

Missing Data

Missing independent variables

In total, only 22 women, less than 1% of respondents, declined to participate in the survey. However, nearly 25% of the surveys have at least one question that was either not asked/not recorded, or the respondent declined to answer.

Table 4.6 provides a summary of missing data and methods for dealing with missing data are further described below.

Missing dependent variables

I first explored the extent and pattern of missingness of the two dependent variables: institutional delivery and DPT3 vaccination. Less than 1% of respondents (44 people) did not provide surveyors with information on delivery. There were no discernible patterns to the missing value. To ensure that the missing responses have limited impact on the final analysis, I conducted sensitivity analysis by comparing results of the model with imputed values, with the model that excluded the missing values. No significant difference was observed in the findings of the two models. In the final model, missing values were excluded from the analysis.

Seven percent of the respondents (N=472) did not provide information on whether their children under 2 years of age received the third dose of DPT vaccination. This is not unusual as DPT3 vaccination is a difficult indicator to measure: many families have difficulties with recalls and/or maintain incomplete vaccination records. In this study, less than 20% of the households visited were able to show the surveyor visited maintained vaccination records. Among the women who were able to provide vaccination records to the surveyor, more than half of the records were incomplete or missing key information, such as the name of the child on the vaccine card. The extensiveness of the missing record posed a challenge.

To better understand the pattern of missing value, I examined the relationship between DPT3 and the other key variables in the dataset. I found that a majority of the missing data was from Badakhshan (N=451). In 26 villages in Badakhshan, surveyors failed to collect data on DPT3 vaccination from all respondents.

Given the extensive amount of missing data from Badakhshan, I decided to exclude data collected from Badakhshan in the analysis. By restricting the analysis to respondents from Kapisa, Wardak, and Faryab, I am not able to generalize findings to the entire study population. Instead, findings are limited to understanding the association between cash incentive and DPT3 vaccination among households that provided responses in Kapisa, Faryab, and Wardak.

Excluding Badakhshan, in total, 4,699 responses were analyzed for DPT3 vaccination. This includes 1,175 responses from the control arm, 1,165 responses from the household arm, 1,169 responses from the CHW arm, and 1,190 responses from the combined arm.

Qualitative Analytical Method

A modified Framework Analysis Approach was used to analyze the data. The Framework Analysis was developed by researchers at the National Center for Social Research in the United Kingdom over 30 years to assess large-scale policies and programs. This approach is particularly useful in operational research because the design allows for *a priori* aims and objectives to be explicitly stated and incorporated into the

instrument and in the analysis. [98] Much like other qualitative methods, the interplay among data collection, thematic analysis, and theory refinement is central to this method. As well, the role of the researcher is critical to both data collection and the analysis.

The following steps were used to conduct the analysis:

- Step 1: Transcription and translation

  With the consent of respondents, all interviews were audio recorded. In addition, interviewers also recorded their reflections of the interview after each session. The audio recordings were given to a team of transcribers who utilized a standard Microsoft Word document format to transcribe each interview. To the extent possible, transcribers were also hired to assist with the translation from Dari to English.

- Step 2: Familiarization with the interview

  The next step in the analysis process is to familiarization with the data. During this stage, I reviewed all the transcripts and reflected on key themes in short memos. One MoPH colleague also participated in this exercise and listened to audio recordings of most interviews. We discussed main findings and emerging themes with SRTRO and other MoPH colleagues.

- Step 3: Coding and indexing

  Next, codes were developed and systematically applied to the transcripts using Atlas Ti Software. The main purpose of coding is to classify and organize data that would then allow for systematic comparison. In this study, MoPH identified key themes to

explore prior to data collection. The *a priori* themes formed the skeleton of the codebook (Table 4.6)

As translated transcripts and memos became available, and through discussions with the field team, we added new codes to capture emerging themes or to further categorize a general theme. For instance, through interviews, it was apparent that there were two major areas where health facilities varied from implementation design: communication and cash management. Statements about these variations were assigned new codes.

It should be noted that several themes that we had intended to explore, including the decision-making process, risk perception, and other areas identified by behavioral economists as influencers on how households make decisions, were dropped after the first round of data interviews.

- Step 4: Refining the study framework

This study did not seek to develop a new framework based on the data collected. Rather, I refined the existing evaluation framework based on emerging data. During this step, codes were further grouped into categories, and depicted graphically in the study framework (presented in Chapter 3).

- Step 5: Charting

Charting involves rearranging the data according to the appropriate part of the thematic framework to which they relate, and forming tables and charts. These tables and charts contain distilled summaries of views and experiences. In this step, I used

Atlas Ti software to help display all statements assigned to certain codes to generate a matrix that provides a quick overview of general impressions across the following types of interviewees - household members, CHWs, health facility staff, MoPH staff, HWW staff, and other stakeholders. Given the large amount of data collected, themes were organized in separate spreadsheets.

- Interpretation

Finally, I analyzed the qualitative data with the goal of identifying common themes as well as divergent views and practices. Quotes that reflect the themes observed were selected to illustrate key issues. Key findings were shared and discussed with MoPH staff at the central level. However, due to budget constraints, I was not able to share the results with provincial health officers, and other individuals interviewed during the data collection process.

4.4 Ethical Considerations

The Ministry of Health in Afghanistan's Institutional Review Board (IRB) approved the research protocol, informed consent, and survey instrument for the qualitative and quantitative study. The Ministry of Health provided written approval to utilize the data for this dissertation. Finally, JHSPH's IRB reviewed and approved my request to conduct secondary analysis of program data for this study.

Table 4.1: Sources of Data

	Sources of Data
Chapter 5: Association of CCT and service utilization	1. Household Endline Survey • 6,130 Respondents for Institutional Delivery • 4,699 Respondents for DPT3 Vaccination
Chapter 6: Assessment of program implementation in Kapisa and Faryab	1. Household Endline Survey 2. In-depth Interviews • 96 interviews with stakeholders 3. Program Documentation • Quarterly program reports • Photographs of communication materials • HMIS data 4. Health Facility Assessments

Table 4.2: Sample Size Calculation for Endline Survey

Effect size	Sample Size
3% increase in institutional delivery	8,420
5% increase in institutional delivery	6,130** [4]
10% increase in institutional delivery	3,200

** Sample size for final survey.

Table 4.3: Number and Characteristics of Respondents in Phases 1, 2, and 3

Phase 1: Discussions with Stakeholders

Respondents	Number of Participants, Kabul
Hope World Wide Headquarters Staff	2
Ministry of Health – Health Economics and Financing Department	2
Total	4

[4] HWW collected response from additional 125 women. The final number of participants is 6,255 women.

Phase 2: Interviews with Stakeholders

Respondents	Number of Participants, Kabul
Hope World Wide Headquarters Staff	6
Ministry of Health Central Level Staff	5
Ministry of Health Provincial Level	1
Development partners	4
INGOs	3
NGOs (BPHS implementing partners)	4
Total	23

Phase 3: In-depth Interviews in Kapisa and Faryab

Respondents	Faryab	Kapisa	Kabul	Total
Vaccinators	2	6		8
Midwives	1	5		6
In-Charge/NGO Program Managers	1	1		2
CHWs	7	10		17
Household (Male)	5	11		16
Household (Female)	4	6		10
HWW	1	1	3	5
MoPH Officers /Provincial Health Officers	1	2	2	5
Total	22	42	5	69

	Kabul	Kapisa	Faryab	Total
Total number of respondents	34	41	21	96

Table 4.4: List of Interviewees in Faryab and Kapisa

#	File Code	Interviewee	Facility	Province	Number of Interviewers	Duration (in Minutes)
1	021	Vaccinator	CHC	Kapisa	02	22
2	022	Vaccinator	CHC	Kapisa	02	40
3	023	CHW	CHC	Kapisa	02	37
4	024	Vaccinator	BHC	Kapisa	02	36
5	025	In Charge	CHC	Kapisa	02	30
6	026	CHW	BHC	Kapisa	02	45
7	027	CHW	BHC	Kapisa	02	33
8	028	CHW	BHC	Kapisa	02	45
9	029	CHW	BHC	Kapisa	02	40

10	0210	Household (male)	CHC	Kapisa	02	22
11	0211	Household (male)	CHC	Kapisa	02	27
12	0212	Vaccinator	BHC	Kapisa	02	24
13	0213	Household (male)	CHC	Kapisa	02	32
14	0214	CHW	CHC	Kapisa	02	51
15	0215	Household (male)	CHC	Kapisa	02	16
16	0216	Household (male)	CHC	Kapisa	02	33
17	0217	Household (male)	CHC	Kapisa	02	29
18	0218	Household (male)	CHC	Kapisa	02	37
19	0219	Household (male)	CHC	Kapisa	02	21
20	0220	Household (male)	CHC	Kapisa	02	21
21	0221	District Health Officer	MoPH	Kapisa	02	24
22	0222	Provincial Technical Advisor	MoPH	Kapisa	02	21
23	0223	Household (male)	CHC	Kapisa	02	18
24	0224	Household (male)	CHC	Kapisa	02	22
25	011	Midwife	CHC	Kapisa	01	48
26	012	Household (female)	CHC	Kapisa	01	62
27	013	CHW	CHC	Kapisa	01	88
28	014	Midwife	CHC	Kapisa	01	42
29	015	Midwife	BHC	Kapisa	01	33
30	016	Field supervisor	HWW	Kapisa	01	57
31	017	Vaccinator	CHC	Kapisa	01	49
32	018	Midwife	CHC	Kapisa	01	33
33	019	Household (female)	CHC	Kapisa	01	40
34	0110	CHW	BHC	Kapisa	01	28
35	0111	Household (female)	BHC	Kapisa	01	19
36	0112	CHW	CHC	Kapisa	01	62
37	0113	Midwife	CHC	Kapisa	01	13
38	0114	Health Facility Staff	CHC	Kapisa	01	60
39	0115	Household (female)	CHC	Kapisa	01	25
40	0116	Household (female)	CHC	Kapisa	01	16
41	0117	Household (female)	CHC	Kapisa	01	26
42	0118	Household (female)	CHC	Kapisa	01	32
43	0120	Reproductive Health Officer for Faryab	MoPH	Kabul	01	35
44	0121	Programe Manager, SAF Org	NGO	Kabul	01	37
45	0122	Provincial	HWW	Kabul	01	30

		Supervisor				
46	0123	Programe Manager	HWW	Kabul	01	35
47	0124	District Supervisor	HWW	Faryab	01	41
48	0125	CHW	CHC	Faryab	01	78
49	0126	CHW	CHC	Faryab	01	40
50	0127	Vaccinator	CHC	Faryab	01	45
51	0128	Midwife	CHC	Faryab	01	34
52	0129	Household (female)	CHC	Faryab	01	45
53	0130	Household (female)	CHC	Faryab	01	32
54	0131	Household (female)	CHC	Faryab	01	31
55	0132	Household (female)	CHC	Faryab	01	30
56	0133	CHW	CHC	Faryab	01	46
57	0134	Household (male)	CHC	Faryab	01	22
58	041	CHW	CHC	Faryab	04	60
59	042	CHW	CHC	Faryab	04	68
60	043	Vaccinator	CHC	Faryab	04	34
61	044	Midwife	CHC	Faryab	04	41
62	045	Household (female)	CHC	Faryab	04	37
63	046	Health Officer	CHC	Faryab	04	64
64	047	Household (male)	CHC	Faryab	04	40
65	048	Household (male)	CHC	Faryab	04	31
66	049	Household (male)	CHC	Faryab	04	25
67	0410	Household (male)	CHC	Faryab	04	32
68	031	Provincial Health Director		Kabul	03	47
69	032	Provincial Health Director		Kabul	03	60

Table 4.5: Health Facility Assessment – List of Health Facilities

	Location	Study Arm	Name and Type of Facility
1	Hesa Awal Kohistan District, Kapisa Province	Household	Ashtergram, CHC
2	Hesa Awal Kohistan District, Kapisa Province	Household	Serkhankhil, CHC+
3	Hesa Awal Kohistan District, Kapisa Province	Household	Sanjan, BHC
4	Hesa Dowan Kohistan, District, Kapisa Province	CHW	Qazaq, CHC
5	Hesa Dowan Kohistan, District, Kapisa Province	CHW	Jamal Agha, BHC
6	Kobhand District, Kapisa Province	Combined	Bolaghain, CHC

7	Kobhand District, Kapisa Province	Combined	Malekar, Sub-rural health center
8	Kobhand District, Kapisa Province	Combined	Durnama, BHC
9	Qurghan District Faryab Province	Household	Qurghan CHC

Table 4.6: Summary of Missing Data

Key Variables	% Missing	Treatment of Variable in Final Analysis
Dependent Variables		
Delivery	<1%	Excluded missing response
DPT3	8%	Excluded responses from Badakshan
Treatment Variable (HH, CHW, Combined, or Control)	0%	N/A
Individual and household Independent Variables		
Education	0%	N/A
Province	0%	N/A
Parity	0%	N/A
Age	0%	N/A
Perceived Security	1%	Excluded missing response
Relative Wealth	1%	Excluded missing response
Knowledge of Health Programs	1%	Excluded missing response
Distance to facility	1%	Excluded missing response
Village Variable	1%	Excluded missing response
Village	0%	N/A

Table 4.7: Codebook

Mnemonic or Numeric "brief" code	Full description of code	When to use and when not to use the code. Examples of use of the code to assist coders.
1. Background	Provides description of the interviewee and the interview setting	
1.1 Category	Interviewee category	Use the following categories for this code: Household (women) Household (men) CHW In-charge HWW staff MoPH Central MoPH Field Midwives Stakeholders Other (specify)
1.2 Time	Length of the interview	Use this code to document length of the

Mnemonic or Numeric "brief" code	Full description of code	When to use and when not to use the code. Examples of use of the code to assist coders.
		interview
1.3 Location	Where the interview took place	Use this code to document if the interview took place at home, facility, office, or other
2. Communication	Provide description of program communication	
2.1 C_Program_Start	Program communication	Use this code for statements about how interviewee first heard about the program
2.2 C_ Knowledge_Delivery	Knowledge about cash incentive program for delivery	Use this code for statements about the CCT program for Delivery In the memo, note the name interviewee uses for the program
2.3 C_Knowledge_DPT3	Knowledge about cash incentive program for DPT3	Use this code for statements about the CCT program for DPT3 In the memo, note the name interviewee uses for the program
2.3 C_Program_Start	Program communication	Use this code for statements about how/where/when the interviewee first heard about the program
2.4 C_Program End	Program communication	Use this code for statements about how/where/when interviewee heard about the end of the pilot
3. Cash Transfer process	Use 3.0 grouping of codes to describe the cash transfer process	
3.1 CT_Process	Cash transfer process from both the health facility staff and the beneficiaries' perspectives	Use this code when statements are made about how cash was transferred, including documentation needed in order to receive cash
3.2 CT_Delays**	Delays in cash transfer	Use this code when statements are made about delays in cash transfer In the memo, note the length of time for the delay
3.3 CT_Amount	Amount of the cash transfer	Use this code when statements are made about the amount received
3.4 CT_Coping**	Coping mechanisms used when the health facility does not have enough cash to dispense	Use this code when statements are made about the coping mechanisms when the health facility does not have enough cash on hand
3.5 CT_Reactions**	Reactions to payment delays	Use this code when statements are made about issues (if any) caused by the cash delays
4.0 Training	For health facility staff only: Use 4.0 grouping of codes to note training received at the health facility	

Mnemonic or Numeric "brief" code	Full description of code	When to use and when not to use the code. Examples of use of the code to assist coders.
4.1 T_CCT	CCT Training provided by HWW	Use this code when statements are made about trainings on CCT pilot project provided by HWW
4.2 T_Cash Management	Training on cash management	Use this code when statements are made about training on cash management
4.3 T_Communication	Training on community engagement	Use this code when statements are made about training to engage the community
4.4 T_CHWs	Training on CHW referral documentations	Use this code when statements are made about CHW referral process
5.0 Perceptions	Use 5.0 grouping of codes to note stakeholder perceptions about the CCT project	
5.1 Perception about Institutional Delivery	Institutional delivery as one of the conditionalities	Use this code when statements are made about institutional delivery as one of the conditionalities for CCT
5.3 Perception about DPT3	DP3 as one of the conditionalities	Use this code when statements are made about DPT3 as one of the conditionalities for CCT
5.3 Perception about CHW	CHW incentive	Use this code when statements are made about CHWs receiving cash incentives for completed referrals
6.0 HH_Decision Making	Use this code when statements are made about how decisions are made in the household regarding participation in the CCT project This could be for DPT3 or institutional delivery	
7.0 Quotes	Use this code for illustrative quotes	
8.0 Fidelity**	Use this code when field practices differ/vary from HWW policies	
9.0 Security**	Use this code when statements are made about security in the area (both good and bad)	

10.0 I_Memo	Use this code to track interviewer's reflections after each interview

**Codes added after review of transcripts

Chapter 5: Association of Cash Incentive and Service Utilization

5.1 Individual and Household Characteristics of the Sample Population

Table 5.1 provides description of individual and household characteristics of survey respondents. Despite excluding respondents from Badakhshan in the final analysis for DPT3 due to an extensive amount of missing data, individual and household characteristics for the two analyses - DPT3 and institutional delivery - are similar and described further below.

Age of respondents: Age was analyzed as a categorical variable including the following groups: 15–19 years old (reference), 20–24 years old, 25–29 years old, and 30 years and older. For both analyses, a majority of respondents were between the ages of 25–29 (47.02% in institutional delivery and 45.84% in DPT3 vaccination) at the time of the survey.

Education: Consistent with findings from nation-wide household surveys conducted around the same time, namely AHS 2010 and NRVA 2011, education levels among women remain low: across the four study arms in both the institutional delivery and the DPT3 study population, approximately 8% of women reported having attended any school. Women who resided in the combined arm were notably less educated: only 3% of women in the combined arm in both studies reported having had any education. In comparison to 8% of women the control arm, 11% in the household arm, and 12% in the CHW arm reported having had attended school.

Ethnicity: The ethnic composition of the respondents reflects the ethnic make-up of the study area. A majority of respondents in Badakhshan and Faryab province are Tajiks and respondents from Wardak and Kapisa province are Pashtuns. Notable differences, however, were observed among the study arms.

In the control and the CHW arm, a majority of respondents identified themselves as Tajiks, Pashtuns or Uzbeks, and less than 10% of the respondents identified themselves as Turkmen, Hazara or other. In the household arm, significantly more respondents identified themselves as Turkmen than in the other three arms (17%- 23% in the Household arm compare to less than 1% in the other three study arms).

Social Economic Status: Principal component analysis (PCA) was used to develop wealth quintiles. The categorization of wealth quintile was based on 15 questions on family ownership of durable assets and house construction. Significant differences were observed among study arms.

In particular, for both DPT3 and institutional delivery, more respondents in the household arm resided in families in the top wealth quintile compare to the other three arms. For institutional delivery, 43% of women in the household arm fall within in the top wealth quintile, compared to 15% of women in the control arm, 22% of women in the CHW arm, and 5% of women in the combined arm. Similarly, in the DPT3 vaccination study, 54% of women in the household arm are in the top quintile of wealth, compared to 20%

of women in the control arm, 23% of women in the CHW arm, and 5% of women in the combined arm.

Distance to Facility: A major improvement in the Afghan healthcare system over the past decade is the availability of facilities. A majority (80%) of the respondents reported that they know of a government health care facility near their homes and how to get there; 68% lives within one hour of walk to a government facility. Among the four intervention arms, respondents in the combined arm lived furthest away from a health care facility with 4% of respondents traveling more than one day to reach a health care facility.

Utilization of health care services: A majority of respondents (62%) reported using health facilities between 1- 5 times over the past year and less than 10% of the respondents used the facility more than 10 times in the past year. Consistent with literature, data show that utilization of services is positively correlated with wealth and education. In this study, 30% of respondents who reside in the wealthiest households reported using health facility more than 5 times within the past years. In comparison, only 15% of women in the poorest households used the facility more than 5 times in the past year.

Awareness of health programs and community health workers: Three questions were asked to gauge women's awareness of health programs and availability of health services in their district. Questions include awareness of family planning programs, reproductive health programs, and community health workers. Among the three programs, two-thirds of women were aware of reproductive health programs (68%) and family planning

programs (60%) in their community. Almost half of the respondents (48%) know at least one CHW working in the community. As expected, awareness of health programs is associated with wealth and education. Women who are in the wealthiest health quintile are more familiar with health programs and more likely to know at least one CHW.

Perceived security: Since, 2008 there has been a notable increase in violence across Afghanistan -- both among tribal groups, as well as between insurgent groups and government forces. According to a United Nations report, civilian deaths due to warfare increased by 47% from 2009 to 2011, from 2412 deaths to 2790 deaths. In Afghanistan, level of insecurity tends to vary from district to district. While a majority of armed conflicts (75%, according to UN estimates) are related to anti-government insurgencies, in many areas, including a few CCT districts, land and resource disputes also contribute to on-going violence.

In this study, nearly one in five respondents reported feeling insecure about her environment most or all of the time. I found significant differences among study arms and within provinces: one third of the women (29%) in the control arm reported feeling insecure most or all of the time while 10% of women in the CHW arm reported feeling insecure most or all the time in the institutional delivery study. Similar trends were noted in the DPT3 study: 37% of respondents reported feeling insecure most or all of the time, and 12% of respondents reported feeling secure most of the time

Looking at district level variation, an exceptionally high percentage of women reported not feeling safe most or all of the time in two districts in Wardak - Chat district (control arm) and Jarlez district (household arm). In Chat district, 81% of respondents did not feel safe most or all of the time and in Jarlez, also in the Wardak province and assigned to the household incentive arm, 74% of respondents did not feel safe most or all of the time.

5.2 Association between conditional cash transfer and institutional delivery

Descriptive Analysis

Figure 5.1 shows the percentage of women who delivered at a health facility between 2009 and 2011 in each intervention arm district. Overall, proportion of women who delivered at a health facility remains low: 39% of respondents in the household arm, 32% of respondents in CHW arm, 12% respondents in combined arm, and 32% respondents in the control arm reported giving birth at a health care facility between 2009 and 2011.

Column 1 of **table 5.2** presents crude odds ratio for institutional delivery. The bivariate analysis shows that in comparison to the control arm, direct cash incentive to the households for institutional delivery (i.e., HH arm) is associated with higher odds of delivering at a health care facility (OR: 1.389, CI 1.010-1.911). However, no association was observed in the CHW arm (OR: 1.014, CI 0.757-1.358). Finally, women in the combined arm are less likely to deliver at a health facility than women in the control arm (OR: 0.285, CI 0.203 - 0.401).

Additional bivariate analysis shows that uptake of services is positively associated with education, age, distance to facility, knowledge about health programs and wealth quintile. In addition, women who reported feeling secure about her environment are more likely to deliver at a health facility. While parity does not appear to be associated with institutional delivery, the variable is included in the final model as literature suggests that parity is associated with institutional delivery in Afghanistan. [95]

At the province level, compared to Faryab (reference case), women in Wardak who reside in one of the pilot districts are more likely to deliver at a health facility (OR 2.458 CI, 1.639 - 3.696), while women in Badakhshan who reside in one of the pilot districts are less likely to deliver at a health facility (OR: 0.192, CI: 0.118-0.311). No differences were observed between Kapisa and Faryab (OR: 0.977, CI: 0.656-1.455).

Mixed-effects logistic regression

At the individual and household levels, after controlling for covariates, a positive, statistically significant association was observed in the household arm compared to the control arm (OR: 1.526, CI 1.005 – 2.316). However, providing cash to CHWs as an incentive for referrals was not associated with higher odds of institutional delivery among women (OR: 1.043, CI 0.726 -1.498). Finally, providing cash to both households and CHWs appeared to have the opposite effect: women in the combined arm are less likely to deliver at a health facility compared to the control arm (OR: 0.126 CI 0.076 - 0.207).

Despite the presence of a cash incentive scheme, factors associated with institutional delivery remain similar to findings from other studies on service utilization. [93, 94] In particular, uptake of institutional delivery was highest among younger women who are educated, live closer to a health facility, and have some knowledge of other health programs offered in the community. Odds of utilization also increased with household wealth: likelihood of women who reside in the wealthiest 20% of households was 58% higher than women who reside in the poorest households.

Interestingly, this study did not find an association between perceived security and institutional delivery. Women who responded feeling insecure about her environment most or all of the time were just as likely to deliver at a health facility as women who felt relatively secure about her environment. While this is consistent with a study conducted by Sundaram in 2011 on determinants of skilled delivery, it is an interesting area for further research. [93]

Focusing on results from the mixed-effects estimator, the standard deviation of the random intercept and its standard errors suggest significant variation among villages. The variance partition coefficient (VPC) indicates that approximately 39% of the variance in the outcome may be attributable to unobserved differences at the village level.

5.3 Association between conditional cash transfer and DPT3 vaccination

Figure 5.2 shows the percentage of children under the age of 2 who received the third dose of DPT vaccine in districts that participated in the CCT program. In line with

findings from AMS, approximately two-thirds of children under the age of 2 reported receiving DPT3 vaccination in this study. In particular, 54% of respondents in the control arm reported children receiving DPT3 vaccination. In comparison, 69% of children in the household arm, 57% of children in the CHW arm, and 62% of children in the combined arm were reported to have received the vaccine.

Descriptive Analysis

Table 5.3 presents the crude odds ratio and the associated standard errors for DPT3 vaccination. Similar to institutional delivery, findings indicate that cash incentive when given directly to households has a positive effect on DPT3 vaccination coverage. Children under 2 years of age in the household arm have higher odds of receiving the third dose of DPT vaccination compared to children of the same age group in the control arm (OR: 1.861, CI 1.387 -2.502). Positive, but not statistically significant difference was observed comparing children who reside in the CHW district (OR 1.118, CI 0.853-1.465). Finally, a positive effect was observed in the combined arm (OR: 1.379, CI 0.983-1.935).

Mixed-effects logistic regression

Findings from the mixed-effects model show that the adjusted odds ratio comparing children under 2 years of age who reside in districts assigned to the household arm compared to children who reside in districts assigned to the control arm was 2.129 (CI 1.427 – 3.451). However, the payment to CHWs only for completed DPT3 vaccination referrals did not improve vaccination rate (CHW are OR: 1.30, CI 0.830-2.031). Finally,

in contrast with the negative association observed between cash incentive and institutional delivery in the combined arm, a positive association was noted for DTP3 vaccination: adjusted odds ratio of DPT3 vaccination comparing the combined arm with the control arm was 1.041 (CI 0.603 -1.797).

It should be noted that the negative finding for institutional delivery is not entirely surprising: institutional delivery rate measured one month before the program started indicated that only 13% of the women in the combined arm have ever delivered at a health facility. This is in comparison with 43% of the women in the control arm, 34% of the women in the household arm, and 42% of the women in the CHW arm.

Age, relative wealth of the family and distance to facility continue to have some effect on service utilization, however these variables do not have a consistent, and/or statistically significant effect on uptake of services.

Findings from the random components of the mixed-level model suggest variations exist among villages in uptake of DPT3 vaccination. In the fully adjusted mode, approximately 33% of the total variance in DPT3 vaccination can be attributed to unobserved differences between villages.

Table 5.1: Description of the Sample Population

Endline Survey		Control Arm	Household Arm	CHW Arm	Combined Arm
Observations	Delivery	N= 1671	N= 1659	N=1268	N=1686
	DPT3	N=1175	N=1165	N=1169	N=1190
Province					
Faryab	Delivery	39%	35%	37%	14%
	DPT3	46%	60%	55%	51%
Wardak	Delivery	61%	57%	40%	18%
	DPT3	60%	68%	50%	64%
Badakshan	Delivery	7%	12%	13%	10%
	DPT3	--	--	--	--
Kapisa	Delivery	21%	55%	39%	5%
	DPT3	57%	79%	66%	71%
Age					
15-19	Delivery	3%	2%	3%	4%
	DPT3	4%	2%	4%	4%
20-24	Delivery	18%	19%	23%	20%
	DPT3	20%	18%	23%	20%
25-29	Delivery	49%	50%	42%	47%
	DPT3	46%	51%	39%	50%
30+	Delivery	30%	20%	32%	20%
	DPT3	30%	30%	34%	31%
Parity					
<=4 deliveries	Delivery	51%	56%	52%	51%
	DPT3	50%	59%	53%	51%
> 5 deliveries	Delivery	49%	44%	48%	49%
	DPT3	50%	41%	47%	49%
Ever attended school					
	Delivery	8%	11%	12%	3%
	DPT3	7%	13%	10%	3%
Walking distance to facility					
<30 minutes	Delivery	28%	34%	23%	15%
	DPT3	31%	42%	25%	18%
>30 - 60 minutes	Delivery	33%	30%	34%	29%
	DPT3	34%	36%	35%	33%
>1 hour to1/2 day	Delivery	27%	25%	40%	40%
	DPT3	22%	17%	37%	32%

>1/2 day to 1 day	Delivery	9%	10%	3%	12%
	DPT3	11%	4%	<1%	13%
> 1 day	Delivery	<1%	2%	1%	4%
	DPT3	1%	<1%	2%	4%
Wealth Quintile					
Poorest 20%	Delivery	28%	9%	11%	42%
	DPT3	21%	6%	14%	42%
40%	Delivery	20%	13%	15%	25%
	DPT3	20%	12%	15%	24%
60%	Delivery	21%	18%	21%	18%
	DPT3	22%	11%	19%	18%
80%	Delivery	15%	17%	30%	10%
	DPT3	17%	17%	29%	10%
Wealthiest	Delivery	15%	43%	22%	5%
	DPT3	20%	54%	23%	5%
Ethnicity					
Pashtun	Delivery	30%	25%	12%	<1%
	DPT3	39%	33%	16%	<1%
Tajik	Delivery	37%	41%	61%	65%
	DPT3	29%	33%	49%	54%
Hazara	Delivery	<1%	7%	6%	25%
	DPT3	1%	0%	8%	34%
Uzbek	Delivery	28%	8%	14%	9%
	DPT3	28%	10%	19%	12%
Turkmen	Delivery	0%	17%	1%	0%
	DPT3	0%	23%	1%	0%
Other	Delivery	5%	1%	5%	<1%
	DPT3	2%	1%	8%	1%
Perceived Security					
Insecure most of the time	Delivery	29%	20%	10%	13%
	DPT3	37%	25%	13%	12%
Secure most of the time	Delivery	71%	80%	90%	87%
	DPT3	63%	75%	87%	88%

Figure 5.1: Percentage of women who delivered at a health facility between 2009-2011, by study arm

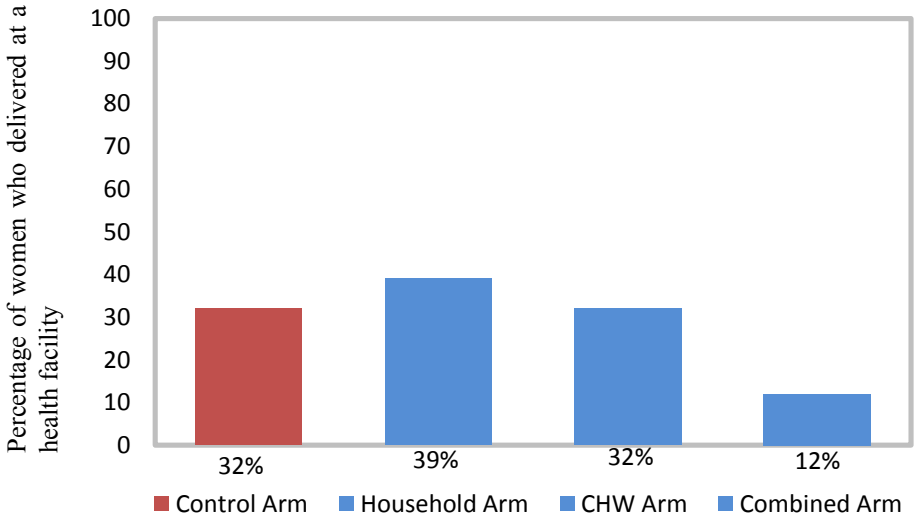


Table 5.2: Crude and Adjusted Logistic Regression Models – Institutional Delivery

	Column 1 Crude Odds Ratio	*Column 2* Adjusted Odds Ratio Mixed-Effects Model
Control Arm	Reference	Reference
Household Arm	1.389** (1.010 - 1.911)	1.526** (1.005 - 2.316)
CHW Arm	1.014 (0.757 - 1.358)	1.043 (0.726 - 1.498)
Combined Arm	0.258*** (0.203 - 0.401)	0.126*** (0.076 - 0.207)
Parity <=4 children vs. >5 children		0.824* (0.655 - 1.036)
Education Ever attended school vs. never attended school		1.858*** (1.369 - 2.522)
Perceived security Secure vs. insecure		1.003 (0.681 - 1.478)

	Crude Odds Ratio	Adjusted Odds Ratio Mixed-Effects Model
Age Groups		
15-19		Reference
20-24		0.433** (0.199 - 0.946)
25-29		0.341*** (0.157 - 0.744)
30+		0.367** (0.158 - 0.856)
Distance from facility		
<30 min		Reference
>30 – 60 min		1.050 (0.783 - 1.409)
>60 – 2 hours		0.677*** (0.506 - 0.907)
>2 hours - ½ day		0.814 (0.442 - 1.502)
> ½ day		2.039* (0.916 - 4.536)

	Crude Odds Ratio	Adjusted Odds Ratio Mixed-Effects Model
Knowledge of Health Programs		
No knowledge of health programs		Reference
Know of 1 health program		1.327 (0.860 - 2.048)
Know of 2 health programs		2.155*** (1.392 - 3.337)
Know of 3+ health programs		3.738*** (2.524 - 5.535)
Province		
Faryab		Reference
Wardak		2.458*** (1.639 - 3.686)
Badakshan		0.192*** (0.118 - 0.311)
Kapisa		0.977 (0.656 - 1.455)
Wealth Quintile		
Poorest 20%		Reference
40%		0.936 (0.667 - 1.314)
60%		1.069 (0.758 - 1.508)
80%		1.376* (0.976 - 1.939)
Wealthiest 20%		1.580** ((1.077 - 2.318)

	Crude Odds Ratio	Adjusted Odds Ratio Mixed-Effects Model
Random effects		
Village level variance		2.124 (1.673-2.697)
Village level VPC (%)		39%

Robust CI in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 5.2: Percentage of children under 2 years of age who received DPT3 vaccination at a health facility between 2009 - 2011, by study arm

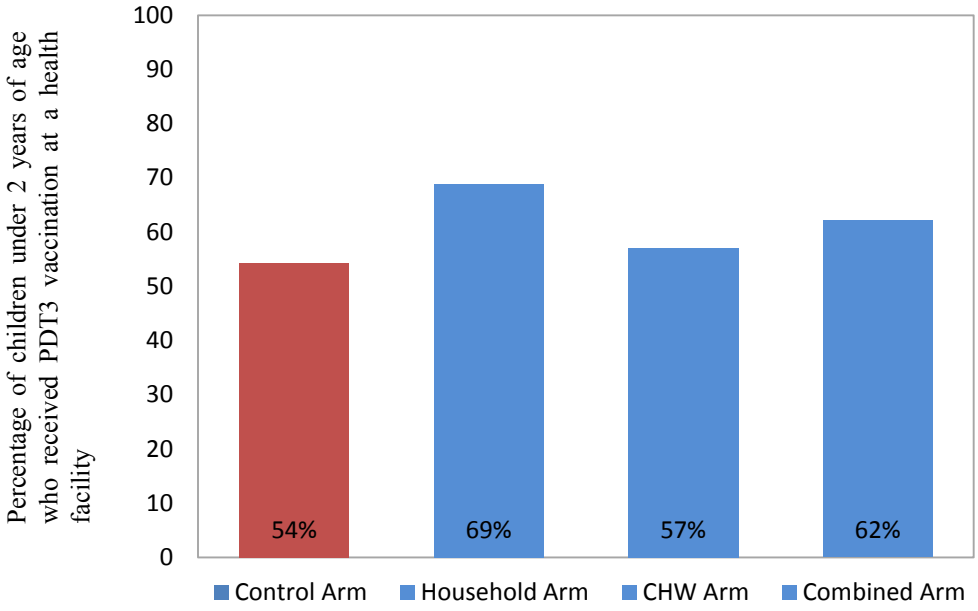


Table 5.3: Crude and Adjusted Logistic Regression Models – DPT3 Vaccination

	Column 1 Crude Odds Ratio	*Column 2* Adjusted Odds Ratio Mixed-Effects Model
Control Arm	Reference	Reference
Household Arm	1.863*** (1.387 - 2.502)	2.219*** (1.427 - 3.451)
CHW Arm	1.118 (0.853 - 1.465)	1.299 (0.830 - 2.031)
Combined Arm	1.379* (0.983 - 1.935)	1.041 (0.603 - 1.797)
Parity		
<=4 children vs. >5 children		0.844 (0.648 - 1.100)
Education		
Ever attended school vs. never attended school		1.553* (0.925 - 2.607)
Perceived Security		
Secure vs. insecure		0.762 (0.493 - 1.177)

	Crude Odds Ratio	Adjusted Odds Ratio Mixed-Effects Model
Age Groups		
15-19		Reference
20-24		1.040 (0.424 - 2.549)
25-29		1.101 (0.451 - 2.689)
30+		1.342 (0.501 - 3.594)
Distance from facility		
<30 min		Reference
>30 – 60 min		1.244 (0.864 - 1.790)
>60 – 2 hours		0.579*** (0.391 - 0.855)
>2 hours - ½ day		0.849 (0.440 - 1.639)
> ½ day		0.827 (0.482 - 1.420)

	Crude Odds Ratio	Adjusted Odds Ratio Mixed-Effects Model
Knowledge of Health Programs		
No knowledge of health programs		Reference
Know of 1 health program		2.088** (1.157 - 3.766)
Know of 2 health programs		2.133*** (1.391 - 3.271)
Know of 3+ health programs		3.394*** (1.391 - 3.271)
Province		
Faryab		Reference
Wardak	=	2.059*** (1.328 - 3.192)
Kapisa		2.684*** (1.746 - 4.126)
Wealth Quintile		
Poorest 20%		Reference
40%		0.911 (0.643 - 1.291)
60%		1.234 (0.875 - 1.741)
80%		0.975 (0.661 - 1.436)
Wealthiest 20%		0.711* (0.474 - 1.067)

	Crude Odds Ratio	Adjusted Odds Ratio Mixed-Effects Model
Random effects		
Village level variance (SE)		1.636 (1.260- 2.125)
Village level VPC (%)		33%

Robust CI in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Chapter 6: Program Implementation

This chapter uses a variety of data sources to (1) describe how the Afghanistan program was implemented, (2) explore stakeholders' perspectives on CCT program design, and (3) assess contextual and implementation factors in two provinces - Kapisa and Faryab. To date, most CCT studies utilize quantitative methods to evaluate effectiveness of the intervention; few studies explore program implementation. However, conditional cash transfer is a complex and resource intensive program to implement. This study adds to the limited literature and knowledge about CCT program implementation and aims to provide policy makers in Afghanistan information on implementation challenges and strategies. This chapter is organized as follows:

- Description of the study sites
- Description of central level implementation
- Results on program design: feasibility of implementing the project in the selected districts in Afghanistan, and acceptability of the CCT pilot project among stakeholders
- Results on program implementation at the central and district levels: technical capacity of the implementing partner, and variations in approaches to program communication and distribution of cash incentives

6.1 Description of study sites

As discussed in Chapter 4, a variety of sources were used to better understand the contextual factors and implementation process. This includes findings from the

household survey and interviews and program reports collected at the central level (MoPH and HWW Headquarters). In addition, I used data collected from in-depth interviews and rapid assessment of supply-side readiness in two of the four pilot provinces: Faryab and Kapisa.

Selection of Field Sites: Kapisa and Faryab

The study team purposely selected Faryab and Kapisa to conduct in-depth interviews with households, CHWs, field implementers, and health facility assessments for three main reasons: (1) geographic diversity; (2) contextual variations; and (3) safety of the field team.

Geography

Kapisa is located in the center of the country, 800 km from Kabul, while Faryab is located in the northwest part of the country bordering Turkmenistan. Both provinces are rural and poor: according to 2008 Ministry data, more than 90% of the population in Kapisa live in rural areas, 30% of the population are literate, 18% have access to clean drinking water, and 38% have access to electricity. Similarly, in Faryab, 89% of the population live in rural areas, 22% of the population are literate, 24% of the households have access to drinking water, and 32% have access to electricity.[10]

Health Service Delivery

Between 2009-2011, health services in Kapisa were managed under a "contracting-in" model, where services were provided and financed by MoPH. In contrast, service

provision in Faryab was "contracted-out" to four NGOs: Solidarity of Afghan Families (SAF), Agency for Assistance and Development of Afghanistan (AADA), Care of Afghan Families (CAF), and Coordination for Humanitarian Assistance. Financing was provided by USAID and contracts were managed by MoPH.

Irrespective of contractual arrangements, according to the 2008 Balanced Scorecard report, health services and overall facility management in these provinces were deemed to be above the national average. The Balanced Scorecard is a performance management tool that has been in use since 2004 to measure and manage performance of health facilities. The scorecard uses 29 indicators to measure performance across the following domains: staff, service provision, financial systems, patients and community, and MoPH's overall vision and capacity for service provision. Scores are benchmarked to national average and tracked on a yearly basis. According to the 2008 report, the composite scores for Faryab and Kapisa are 78.2 and 78.8, respectively, both of which fall above the national upper benchmark of 54.9. Compared to previous years, health facilities in both provinces showed steady improvements over time, particularly in the service provision domains. [99]

Security and Logistics

At the time of the study, Badakhshan and Wardak were particularly difficult for researchers to access due to severe weather and insecurity. In Badakshan, roads to pilot districts were closed due to heavy and prolonged winter storms. After numerous delays, the Ministry decided to replace Badakhshan with Faryab for data collection.

In Wardak, security was the main concern. By 2010, many parts of Wardak were controlled by the Taliban. The Ministry explored training local data collectors (i.e., researchers from Wardak) in Kabul. The study team would conduct quality assurance remotely, through conference calls. However, after several discussions, it was decided that this approach would not ensure data quality.

6.2 Description of the implementation process

Program Launch and Stakeholder Communication

In November 2008, HWW was awarded the contract. Shortly after the program was launched, HWW held a stakeholder meeting and presented the design and overall objectives of the pilot study. Participants of the meeting included MoPH staff, provincial health directors (PHDs) from Badakhshan, Kapisa, Ghore[5], and Faryab; representatives of NGOs providing services in the pilot districts; and other stakeholders, including the World Bank, the European Union, USAID, and GAVI.

In interviews with HWW staff, several emphasized the importance of the initial meeting. One senior member of the HWW team said:

> "We need to get their buy-in. We took a lot of time to explain the objectives of the project to ensure that we have their buy-ins."
>
> - HWW Headquarter Staff, Kabul (Discussion 1)

[5] Ghore was included in the initial design of the CCT pilot sites. After an assessment, the province was replaced with Wardak.

However, for the remaining period of the pilot, no additional meetings were held at the central level. It should be noted that PHDs received updates on the CCT project from HEFD staff as part of on-going meeting discussions on MNCH and Community Health programs; HWW did not participate in these meetings.

Inception Phase

Following the stakeholder meeting, HWW conducted site visits to the provinces selected by the Ministry: Badakshan, Kapisa, Ghore, Faryab. The purpose of the visits was to validate the selection of the study sites and to select the study districts. After the site visits, HWW determined that Ghore province was not suitable for the CCT pilot due to an insufficient number of midwives. The Ministry replaced Ghore with Wardak province.

Field offices were set up in each Province. In Badakhshan and Faryab HWW rented offices, and in Kapisa and Wardak the offices were located in BPHS facilities. Each field office was staffed with one provincial supervisor who was responsible for overseeing implementation of the pilot project at all districts, and three field officers (one per intervention district) who were responsible for training health facility staff on the project, ensuring cash is available, conducting outreach and communication campaigns about the pilot project, and coordinating program monitoring visits at the designated intervention districts.

Between 2009 and 2011, four capacity building workshops for the HWW field staff were held in Kabul. Training topics included the program implementation process, monitoring

and evaluation, and data collection for baseline and endline surveys. Additional workshops were held in the pilot provinces; these trainings were not documented.

Financial Management and Incentive Payment Process

The success of CCT to influence behavior hinges on timely delivery of cash incentives to recipients. According to the HWW final report, a number of processes were put in place to ensure that ample cash was available at the health facility. The following excerpt outlines the fund management, transfer, and payment process[100]:

> *Funds transfer process to the provincial offices:*
> *Each province had a separate bank account in the Kabul Bank so that the provincial supervisors could securely obtain the money needed for the program. On a regular basis as and when needed the Kabul office Finance Manager would transfer funds to provincial office bank accounts based on the cash request submitted by the provincial supervisor. The provincial supervisor would withdraw the cash from the bank via checks, which were signed by all the appropriate people. These funds were then used for basic operating expenses and distribute [sic.] to the BPHS facilitators, CHWs, and staff on a monthly basis.*
>
> *Cash deposit with BPHS facilitators:*
> *In secure areas where transportation was readily available, cash advances were given to the BPHS facilitator every 15 days. In areas where transportation was not readily available, cash advance [sic.] were given to the BPHS facilitator on a monthly basis. Each time a cash advance was given, the previous advance was cleared by the BPHS facilitator submitting the corresponding incentive payment vouchers that were distributed. The field officers collect these incentive vouchers on a regular basis and submitted them to the provincial supervisor. On some occasions the provincial supervisor would collect the vouchers himself if he was conducting a M&E visit.*
>
> *Incentive cash payment to CHWs:*
> *The incentive cash payment to the CHWs was paid based on the number of referrals successfully made. These incentives were paid when the referral submission form was submitted by the CHWs and these forms were cross checked with BPHS facility records. These incentives were paid to the CHWs by the field officers on a weekly, bi-weekly, or monthly basis depending on the number of referrals submitted in any given period.*

-- HWW Final Report, 2011

During field visits in Kapisa and Faryab, the team asked if guidelines were in place regarding who should manage the cash at the health facility and the process for recipients to collect the cash. Based on interviews with HWW and health facility staff, there appears to be no standardized arrangement of how to manage cash at the facility level, and few were aware of HWW's policies.

Public Awareness Activities

HWW relied mostly on print materials such as posters placed at the health facilities and leaflets given at community events. In addition to print materials, meetings were held with district health shuras (groups of community elders), Community Development Council (CDC) members, and mullahs (local religious leaders). However, from the technical reports, objectives of these meetings are not clear.

Monitoring and Evaluation

Monitoring Process

Monitoring visits—from HWW headquarters staff to provincial offices, and from field officers to health facilities and the community—occurred on a quarterly basis. Upon the Ministry's request, HWW adapted the National Monitoring Checklist and used it to guide the monitoring visits.

HWW field staff also conducted community audits to verify that incentives were indeed given to CHWs and households. On a quarterly basis, field staff would randomly select 2-

3 cash recipients from the CCT program registry, and conduct household and/or CHW verification. Since recordkeeping was poor and addresses were not available in most districts, a community member (typically a CHW or vaccinator) who was familiar with the community would accompany the visit. Verbal and visual verification of the child was used for institutional delivery. For DPT3, verification protocol required that the HWW staff review the vaccination card. However, this was difficult to implement as few households could maintain vaccination card(s). In most instances, staff relied on verbal verification for DPT3 vaccination.

Finally, focus groups with CHWs and households were conducted every six months. The purpose of the focus groups was to assess how well the program was functioning and to see if there were areas where the program may improve. CHWs and household members who received the incentive were invited to the focus group discussions. These discussions were lead by HWW field officers and key findings were noted in the technical narrative report submitted to the Ministry on a quarterly basis.

6.3 Results of Program Design: Acceptability and Feasibility

Acceptability

Most stakeholders - household members, CHWs, health facility staff, community leaders, and government officials - were positive about the program and encouraged the Ministry to consider using this modality to encourage service utilization. However, the most common reason cited for support of the program was financial benefits to the households and CHWs. For the household respondents, the cash helped pay for a range of costs

incurred during seeking care. They include: food and lodging, transportation, medicine, and ancillary costs. For CHWs, many indicated that the money made them feel appreciated and compensated for some expenses. Similar sentiments were expressed by health facility staff who were not compensated under the CCT scheme. Most welcomed the concept of using cash incentive to increase service utilization.

> "Yes, it had good impacts. The vaccination patients were less before but then when the community health workers went to the villages and told people about everything and they received awareness, they were coming more to the clinic. They also know more about why they need to come get the shots. I think this makes my job easier."
>
> - Vaccinator, Kapisa (Discussion 021)

> "Allah is Great. He knows that I am poor, I don't have money. In my opinion, as my life condition is not good, I am very happy from the clinic for giving me money. That one hundred and fifty has helped me a lot, I have spent it on many things. I am very happy from the doctors in the clinic. I am happy from you too."
>
> - Woman, Faryab (Discussion 019)

> "In my opinion, the incentive money was good. I like what I do but I am poor. 150 Afs allows me to buy some food and fuel. I can use the money to go to more houses."
>
> - CHW, Kapisa (Discussion 028)

Nevertheless, few interviewees disagreed with the use of conditional cash transfer to improve utilization of health services. One program manager from the Provincial Health Department in Kapisa suggested that a better use of the money would be to improve health facilities. According to his assessment, the investment should be put towards improving maternity wards, buying more ambulances, and building sleeping quarters for midwives so that they could stay overnight. A CHW working in the district assigned to the combined arm in Kapisa commented that the incentive scheme negatively impacted on his work: " the idea is good but the clinic can never pay. People ask me why I tell

them there is money when there is not." Finally a few household members suggested that the money should be given the households without conditionality.

The interviewers further probed on acceptability of specific conditionalities: institutional delivery and DPT3 vaccination. Most interviewees were knowledgeable about, and welcomed, cash incentive for DPT3 vaccination. Fewer respondents were aware of the institutional delivery incentive. And among those who were aware, some did not think the conditionality was appropriate.

> "No. I know there is money, but I cannot use the clinic. The clinic is for people who are very sick. If I don't have any problem at home, why should I go to the clinic? At most the delivery will last two hours or three hours. My brother in-law's wife is here to help me. My mother and my sisters don't come here because they have had argument with my husband."
>
> - Woman, Faryab (Discussion 019)

Feasibility – Supply Side readiness

To assess the feasibility of the study design, we focused on supply-side readiness and asked the following question: *Did the health facilities have the capacity to provide institutional delivery and DPT3 vaccinations?* To answer this question, we conducted rapid assessments at nine participating health facilities using an abridged and adapted version of the health facility form for the Balanced Scorecard. [92]

Tables 6.1 and 6.2 provide a summary of supply-side indicators based on the rapid assessment

Institutional Delivery - Human Resources

Of the nine health facilities visited by the research team, seven had at least one midwife on staff at the time of the assessment. Two health facilities (Sanjan and Durnama, both BHCs in Kapisa) reported having one male nurse and one male physician on staff, and no female staff.

Institutional Delivery - Basic Infrastructure and Opening Hours

With the exception of one health facility (Durnama in Kapisa), all health facilities and one sub-rural health facility had at least a maternity bed or delivery table. However, only four health facilities had both running water and electricity during the assessment visit, and all health facilities had limited opening hours; all health facilities (including a CHC+ facility) reported being open from 8:30 a.m. to 3:30 p.m. in the winter, and from 8:30 to 4:00 p.m. during the summer months.

One PHD from Kapisa commented:

> "I don't see a change with this program. A mother comes from a very far place to a clinic where they work from 8:00 to 3:30 in the afternoon. There is not a waiting room in at the clinic and the [woman] whose delivery will be very soon, she may have to come back soon. She may have [to come back in] one day, two days or three days. The midwife tells her to go home and come tomorrow.
>
> What we want is a room for the woman to stay in. We do not want the money for delivery"
>
> - PHD, Kapisa (Discussion 032)

Institutional Delivery - Emergency Referrals

The Ministry of Health has designated four types of facilities to provide emergency obstetric and neonatal care (EmONC). They include district hospitals (DHs), provincial hospitals (PHs), regional hospitals (RHs), and specialized hospitals (SHs). In remote

areas where DHs or PHs are not available, CHC+ are equipped to manage obstetric complications. In theory, all BHCs and CHCs are equipped with vehicle(s) to provide transportation for patients to the referral facilities (either a hospital or CHC+) However, in practice, not all health facilities have a functional vehicle, and/or fuel to provide the emergency transfer. In our assessment, less than half the health facilities (4 out of 9) had both a vehicle and fuel on the day of the assessment.

These supply-side limitations have an affect on program implementation. Indeed, this was a concern most frequently raised by interviewees.

One maternal health officer at the Kapisa provincial health office commented:

> "From the start, I was not sure the delivery component will work. Look, we are in a very mountainous area. We do not have electricity or gas to keep the lights on in the evening, and in many places we do not have water. Also, look around— we do not have a place for people to stay. Where are the midwives going to sleep if they stay overnight? Where are the families going to stay? The best thing to do is to take the incentive money and improve the health facilities. I am not against giving family money. But first, we have to fix the health facilities"
>
> - Maternal Health Officer, PHD, Kapisa (Discussion 0221)

Another in-charge officer in Faryab said:

> "We do not talk about institutional delivery and do not encourage it. We did not had a midwife for more than a year, we do not want a woman to show up at our facility when we cannot deliver the baby."
>
> - Health Facility Staff, Faryab (Discussion 046)

DPT3 Vaccination - Human Resources

Compared to institutional delivery, DPT3 vaccination is less resource intensive. A larger cadre of health workers including vaccinators, nurses and doctors are allowed to give

injections. During the assessment, the team found that eight of the nine health facilities reported having a vaccinator in the clinic; Malekar, a sub-rural health center in Kapisa, was the only health facility that reported not having a vaccinator on staff.

DPT3 Vaccination - Basic Infrastructure

Similarly, infrastructure and vaccines appear to be in place; most health facilities (8 facilities) had a solar-powered vaccine refrigerator and sharps disposal canisters (7 facilities). We did not access the functionality of the refrigerator or the temperature. In later discussions with MoPH staff, this was raised as a challenge.

DPT3 Vaccination - Availability of DPT Vaccine

While this was not assessed during the health facility visits, inconsistent supply of vaccines was mentioned and appeared to be a more common issue.

> "We do not always have the vaccine. That is true. For families that live nearby, this is not a big problem. Many just come back. We were giving them incentive money so this is not a problem. They come back. Some families live very far."
> - Vaccinator, Faryab (Discussion 024)

> "There were no medicine for us now. I don't have medicine for eight months ago. This is a great problem for DPT3 and for delivery"
> - CHW, Kapisa (Discussion 0112)

DPT3 Vaccination - EPI Registry

A more common difficulty identified by the vaccinators was the lack of ability to verify that the patient has received the first two doses of DPT vaccine. Most health facilities have a poorly maintained EPI registry and most households do not have a vaccine card. Given the difficulty in verification, in most instances incentives were given to households regardless if the child was receiving the first, second, or third dose of DPT vaccine.

> "We don't have a good way to keep track of everyone. I ask them and they tell me. That's how we find out. Maybe some people come back for more than 3 shots, and maybe some people are getting their first shot. We also have some people who go to other clinics for the first 2 shots, then come here for the 3rd one for vaccine money. We all think this is a good program so we do not want to make lives hard for people. You know people are poor here. We give the shot and we tell the supervisor to pay."
>
> - Vaccinator, Kapisa (Discussion 024)

Community Health Workers (CHWs)

One arm of the cash incentive aims to motivate CHWs to complete referrals. As such, availability of CHWs in the pilot districts is important for program implementation. We inquired about availability of CHWs at districts assigned to the CHW and the combined incentive arm. We found that a majority of the health facilities had at least one CHW associated with the health facility; Malekar, a sub-rural center in the Kobhand District of Kapisa Province, did not have community health workers.

In places that did not have CHWs (or a sufficient number of CHWs) to provide services to the community, interviewees noted that communities were able to recruit CHWs as a result of the incentive program. This was confirmed by HWW's quarterly report. According to the July-September 2009 report, health facility in Karan-a-Munjan, a remote district in Badakshan Province, successfully recruited a CHW as a result of the CCT project:

> "Some villages do not have CHWs, therefore, the community has proposed to introduce a representative to work as a CHW and refer the potential beneficiaries to the BHC. After the MoPH approval for the community representatives to work as CHWs, and to refer the beneficiaries to BHCs, they have been paid incentives for 15 referrals which had been pending in July."
>
> - July-September 2009 HWW Quarterly Report

6.4 Results on program implementation

Technical and Managerial Capacity of the Implementing Partner

The implementing partner (IP) is responsible for designing and executing the implementation strategy, coordinating activities with other projects related to health, supporting health facility staff in implementing the program, and monitoring progress. The technical capacity of the IP to carry out the activities has a direct effect on program outcomes. For many CCT projects, the implementer is the government. In Afghanistan, an international NGO based in Kabul – Hope World Wide (HWW) was selected to implement and evaluate the project.

Capacity of HWW

The general perception among the HEFD team was that HWW had limited technical and overall managerial capacity to implement the CCT project. In particular, staff noted the organization's lack of experience implementing demand side financing programs and minimal experience in rigorous program evaluation were one of the main reasons that the program did not succeed.

Issues surfaced within a few months after the grant was awarded in 2008. Documented communication between the Ministry and HWW indicated that the Ministry was concerned about many aspects of the project. According to the July-September 2009 quarterly report, HWW received a warning from the Ministry that project start-up was not progressing as expected and funding would be withheld until concrete actions were taken. Problems raised in the report include poor baseline survey design, delays in setting up

bank accounts in provinces, and mistakes in the HWW financial invoices submitted to the Ministry (July – September 2009)

One MoPH staff commented:

> "We had a difficult time with the project at the beginning. We were not too happy for many reasons. They did not have the right people for this project. We had to provide them with many guidelines and sometimes do things for them."
>
> - MoPH Staff, Kabul (Discussion 2)

His colleague echoed:

> "In the end, too many things went wrong. We did not have a good baseline survey and had so many delays for the mid-term survey that we decided to cancel. This is a good program. Really is…. It can help many people in Afghanistan. But too many problems."
>
> - MoPH Manager, Kabul (Discussion 2)

The relationship between HWW and the Ministry remained contentious throughout the project, which at times impacted program implementation.

Financial and Communication: Variations in program implementation

Drawing on data from HWW quarterly reports and in-depth interviews in Kapisa and Faryab, this section provides findings on implementation approaches in the field. In particular, this section highlights variations in implementation approaches, as many processes were not well defined by HWW. It should be noted that both positive and negative deviations occurred; we noted innovative approaches that allowed the program to be delivered more effectively and efficiently, as well as practices that contributed to further delays in payments and miscommunications about the project. In particular, we focused on two areas where we observed diverse implementation strategies: program communication and administration of cash.

Program Communication

Womens' awareness of the cash incentive program is a key indication of the reach of the program and a proxy for how well the program was implemented. HWW developed a communications plan that focused on informing the stakeholders about the pilot program through print materials. Banners and leaflets were placed at health facilities and community centers. In addition, HWW field staff met with community leaders, CHWs, and households to inform them about the purpose of the project and to gather feedback on program implementation. Due to the high cost of travel and the difficulty in reaching some of the villages, in-person interactions were less frequent.

According to the endline household survey, most households were aware of the program. Nearly 80% of women surveyed in the household arm reported having heard of the cash incentive program for delivery, and 85% of women in the combined arm had heard of the cash incentive program. In the CHW and control arms, there was no communication about the program to the household since incentives were not given. As expected, less than 1% of respondents were aware of cash incentive programs in the CHW arm and only two people reported having heard of the cash incentive program in the control arm.

However, most households did not find out about the program through communication materials provided by HWW. According to the endline survey, friends and family were the main source of information. In Kapisa and Faryab, nearly 80% reported having heard about the program through family and friends, and 68% reported hearing about the program from health facility staff. In contrast, only one- third (29%) of respondents

learned about the program through CHWs, and even fewer heard of the program through mullahs and community councils.

Through interviews, we further explored the various communication approaches that HWW field officers and health facility staff used to inform households about the program. In line with findings from the household survey, various informal channels were used to promote the incentive program. A common approach was for health facility staff to ask women who received cash incentives to tell her friends and families. This was done through both informal and formal arrangements.

One health facility staff in Kapisa stated:

> "We have posters at the health facility. You can see it. But we read it for them. Then I tell the woman to tell all her friends. I tell her husband too. I tell him to tell all his friends."
>
> - Health Facility Staff, Kapisa (Discussion 022)

Another CHW described:

> "As I told you before that CHW were calling them out by loud speakers to come in the mosque. One day ahead the Community Health Supervisor (CHS) was calling CHW about vaccine to collect the women in the mosques or in the house of CHW not only vaccine of children but if they are pregnant they also to come for vaccine."
>
> - Midwife, Kapisa (Discussion 0113)

Various names were given to the program: For instance in Kobhan, the incentive scheme was referred to as the "vaccination money". Other names included "sanitation money", "government money", "injection cash"," and "health money".

Communication: end of the Program

One consistent theme observed during field visits was a lack of communication about when the incentive program would end. In several of communities visited, there were no apparent efforts by HWW to let households, health facility staff, and community members know that the pilot project had ended. Four months after the pilot ended, one vaccinator at a clinic in Faryab said: "There is some delay, but money will come. I tell the women to check back." (Vaccinator, Faryab Discussion 0126)

In Kobhan, a district in Kapisa that provided incentives to both CHWs and households, health facility staff gave out "promise notes" in lieu of cash when the pilot program ended. During one site visit to Kobhan that I joined, the field team's car was surrounded by villagers waving such promise notes and seeking compensation from the Ministry staff who accompanied the field team. Members of the community were visibly upset; the CHW who accompanied the team on the site visit explained:

> "Everyone is confused about the program. We are not sure why it ended. At fist, [sic.] we thought it was because money was not there. So like before when we did not have money right away, we hand out these vaccine promise notes. We tell them that we'll let them know as soon as the money is here and they can come and collect. So that is how the promise notes happened. Now they are very upset with us. You can see how upset they are. Please try to bring the program back"
>
> - CHW, Kapisa (Discussion 026)

A female CHW added:

> "Ten women were coming to my house daily for refers. [sic.] I explain for them that this program is finished and will start again. They were saying that you were not giving us the referral money, you misuse the money. I was telling them that this money was from higher level of government and now they stopped this program by the ministry of public health. I tell them to be hopeful for restarting program."
>
> - CHW, Kapisa (Discussion 0112)

Even among clinics that communicated with families regarding the end of the program, issues remained. One CHW at the Hesse-Awal District in Kapisa Province explained:

> "Before the project ended, we had a midwife, people were coming to the clinic for deliveries, and patients for receiving [DPT3] vaccination were also referring to the clinic. Now we are in trouble with that program, people don't come or if they come they always argue with us to give money. We were giving one hundred and fifty Afghanis for DPT3 vaccinations. We tell people project has ended and there is no cash. Many people do not believe us."
>
> - CHW, Kapisa (Discussion 028)

Cash Management and Incentive Payment

Cash Management

Cash management is a new concept to most of the participating health facilities. Prior to the CCT program, most health facility managers or in-charge officers do not maintain a cash registry as all operational costs were paid for by the contracted NGO. During field visits, the team observed limited capacity at health facilities to manage cash flow and wide variations in cash management practices. In most facilities, the in-charge officer assumes the responsibility of providing cash to the households and CHWs, and maintained a ledger that documents disbursement, including records of the names and addresses of the beneficiaries. In a few facilities, the vaccinator was responsible for cash disbursement and in one facility, the responsibility was split between the vaccinator and a senior medical officer; the vaccinator provided cash incentives to households, while the medical officer made payments to community health workers.

Regardless of who is responsible for managing and disbursing cash, a consistent theme that emerged was limited capacity among facility staff to manage cash flow, and a lack of hands-on training and assistance provided by HWW.

One staff member explained:

> "I do not think we received enough training about what to do [with cash incentive]… HWW gave us a form to keep track of the people who received the money, but we had to come up with our way to make sure that money we have in the cash box matches the amount paid, otherwise we get in trouble. This took a lot of time…."
>
> "Training is not enough. They need to show us at the clinic how to do things. Because every time we get something wrong, they delay in giving us the money."
>
> - Health Facility Staff, Kapisa (Discussion 018)

Another staff member explained

> "No, there was no one to whom I had complained to or ask more questions. For example the one who trained us in the workshop for 2 days…went back…"
> - CHW, Kapisa (Discussion 0114)

In another clinic, a midwife said:

> "One month we do it one way, and another month we do it another way. Sometimes the problem is that we do not have any vaccine money."
> - Health Facility Staff, Kapisa (Discussion 0212)

This lack of capacity to manage cash flow at the health facility was a source of stress for some health facility staff. One in-charge officer at the health facility commented:

> "I was away for one month because my family was sick. Then I found out that no money was given while I was away. The money was there and they have the key to the [cash] box, but no one was sure how to do things and they were afraid to do it wrong. They told the family to come back. Some families got very angry and said that we lied to them."
> - Health Facility Staff, Kapisa (Discussion 025)

The fear of mishandling cash led some health facilities to take conservative measures, such as requiring double-signature upon receipt of the cash, limiting cash disbursements to the assigned staff (even when the staff is on leave), and extensive verification for CHW referrals. Many of the measures put in place contributed to further delays in cash disbursement and may not be necessary if proper support was provided by HWW.

Incentive Amount

Among households that received cash incentives for either DPT3 vaccination or delivery, a majority (95%) reported receiving the full amount: 150 AFN for DPT3 and 300 AFN for delivery for households. This was observed in findings from the household survey and verified with data collected through in-depth interviews. Of the respondents who reported having received a different amount, the range reported was between 80 AFN and 200 AFN for DPT3, and 20 AFN to 400 AFN for institutional delivery. There were no discernible patterns by district or household characteristics among individuals who reported receiving more or less than the official incentive amount.

The team did not conduct a survey among the CHWs. Instead, questions about payment amount and frequency were explored during in-depth interviews in Kapisa and Faryab. Of the CHWs interviewed, all reported receiving 150 AFN per DPT3 referral, and the majority reported receiving 150 AFN for institutional delivery referrals. However, two CHWs were only aware of the incentive scheme for DPT3 and not for institutional delivery.

Incentive Payment

Administration of the cash varied in terms of the process and when cash was received. According to program protocol, CHWs receive payments on a bi-weekly basis, and households receive cash upon service utilization.

In practice, cash payments for households and CHWs were often delayed. Delays in payments for households ranged from two to three days to more than six months. Delays also occurred regularly for CHWs; according to interviews with CHWs, many said that payments were ad hoc and depended on when the health facility received cash replenishment.

Despite the delays in payment, some women did not see this as a major problem and accepted the delays as the normal course of business. One woman in Faryab mentioned:

> "It is not good, but it is ok. Doctor gave me the money maybe some time later. I have to go for 2 children vaccine money later. Things are not always there at the clinic, so I have to go back."
>
> - HH, Faryab (Discussion 0131)

Others saw this as a breach of trust: "If you do not have money, do not make a promise." – HH, Kapisa (Discussion 0116). When probed whether not receiving timely payments to cover travel and other associated costs caused any financial problems, the response was mixed. Some reported that the payment delays led to high out-of-pocket expenditures, while others said that delays in payment were an inconvenience but did not affect overall expenditures. It should be noted that all the respondents in our qualitative study sample

lived close to a health facility; we were not able to explore the impact of payment delays on women in the rural areas.

CHWs interviewed expressed more frustration with the payment system. Their main complaints include (1) delays and unpredictability of the payment schedule, and (2) not receiving payments for all their referrals. The former was linked to ongoing problems with transferring cash to the health facilities. The latter was, in part, due to the fact that HWW stipulates that payments need to be based on completed referral slips. If a household member forgets to bring the referral slip or lost the slip, the CHW would not get paid. To mediate the issue, the in-charge officer in one facility relaxed the rule; payments were made to CHWs based on CHW records, and/or if the patient mentioned by name the CHW who made the referral.

Due to these payment issues, the relationship between the CHWs and health facility staff was contentious at times.

One CHW in Kapisa said:

> "The doctors who were from our clinic misused the money and no others who are in high ranking positions. For the first time when I got familiar with doctors there was a doctor by the name of x and one another as well, he said whenever you have any problem you can tell me I didn't have his number when he was coming after two months he was meeting with other doctors I couldn't talk with him separately there was no opportunity for me to talk with him, I had seventeen refers but at the end of month when I was asked about refers I told the doctors I have seventeen refers because there was the name of the referrers as well I had their names in my list but they were giving me only four refers money. When I asked them what about others they were saying that the women didn't bring their refer letters."
>
> - CHW, Kapisa (Discussion 029)

Reasons for payment delays

Given the widespread discontent regarding delays in payment, particularly among CHWs, we attempted to trace the reasons for delays in cash disbursement from the facility to the HWW field office to HWW headquarters to better understand the bottlenecks.

At the facility level, the most common reason cited for delays in payment was inadequate funds. According to interviews with health facility staff, monthly replenishment often arrived 2 to 3 weeks late. One vaccinator said:

> "Money should be given to the family right after I give the shot. Sometimes we cannot do this because we did not receive the money that month…. When I know that we do not have the money in the health facility, I tell the mother first so she does not get mad. I still tell her it is good for the baby to get the shot"
>
> - Vaccinator, Kapisa (Discussion 017)

Another reason for delays in disbursement is the absence of the in-charge officer or authorized staff to give cash. In most health facilities visited, only one person, typically the in-charge officer or the head vaccinator was allowed to disburse cash. In some facilities, the person responsible for cash disbursement would bring the cash box home at the end of the day, and in other facilities the cash envelope would be kept in a locked drawer at the health facility.

At the HWW field office level, field and headquarters staff said that delays were due to two reasons: incomplete or delayed cash request forms from the health facilities, and lengthy bank procedures to transfer the funds from the central to the provincial level.

One HWW field officer noted:

> "For example, we do not get all the referral sheets. CHWs give us the sheets, and the health facilities give us the sheets. They are not the same, and we have to spend time to see who is correct."

> "And for the family, we do not know where the money goes. I cannot give them [health facilty] more money if I do not see the name and address of the people [who received the incentive] from last month."
>
> - HWW, Kabul (Discussion 2)

Strategies to address payment delays

At the facility level, several strategies were used to manage payment delays. The most common strategy was to ask the recipient (woman or CHW) to return to the health facility when cash is available. In one clinic in Kobhan, health facility staff gave out promise vaccine notes, and in other clinics, the health facility staff made a note in the ledger of the amount owed.

In one instance, a health facility staff provided money out of her pocket. She explained:

> "This woman from the village came to the clinic and we did not have enough money. I know her very well so I gave her the incentive money. I work here so it is easy for me to get the money from Dr.[name]. For her, it takes too long to get to the clinic. I don't want her to have to come back. But I was also afraid that I would not get the money back and people would say that I made it up. In the end, it was fine. Dr. [Name] was a good man and he believed me."
>
> - Health Facility Staff, Kapisa (Discussion 024)

In another clinic, health facility staff said that he only gave cash incentives to women who asked for the payment. He explained:

> "I only give money to people who ask for the money. The people who do not ask, there is no need to volunteer the information. If we do, we will not have enough money for the other people."
>
> - Vaccinator, Faryab (Discussion 043)

In summary, a variety of approaches was used to ensure to address payment delays (see **Table 6.2**) Some relied on a trust-based understanding between the health service

provider and the patient that when the money is available, they will receive the payment. Others, however, only provided payment upon request.

Table 6.1: Feasibility – Supply side Readiness for Institutional Delivery

	Name and Type of Facility	Type of Facility	Open Hours	Electricity and Water	Maternity Bed	Obstetric emergency referral guidelines	Functional vehicle for referrals on the day of the visit	Health Facility Staff- At least 1 female nurse, midwife or physician on staff
1	Ashtergram	CHC	8:30 a.m. – 3:30 p.m.	No	Yes	Yes	Yes	Yes
2	Serkhankhil	CHC+	8:30 a.m. – 3:30 p.m.	Yes	Yes	Yes	Yes	Yes
3	Sanjan	BHC	8:30 a.m. – 3:30 p.m.	No	Yes	No	No	No
4	Qazaq	CHC	8:30 a.m. – 3:30 p.m.	No	Yes	Yes	Yes	Yes
5	Jamal Agha	BHC	8:30 a.m. – 3:30 p.m.	No	Yes	Yes	No	Yes
6	Bolaghain	CHC	8:30 a.m. – 3:30 p.m	No	Yes	Yes	Yes	Yes
7	Malekar	SRHC	8:30 a.m. – 3:30 p.m	No	Yes	No	No	No
8	Durnama	BHC	8:30 a.m. – 3:30 p.m.	No	No	No	No	No
9	Qurghan CHC	CHC	8:30 a.m. – 3:30 p.m.	Yes	Yes	Yes	Yes	Yes

SRHC = Sub rural heath center; BHC = Basic Health Center; CHC = Comprehensive Health Center,
CHC+ = Comprehensive Health Center Plus

Table 6.2: Feasibility – Supply side Readiness for DPT3

	Name and Type of Facility	Type of Facility	Availability of EPI vaccine and adequate storage	Health Facility Staff – at least one doctor, nurse, or vaccinator on staff
1	Ashtergram	CHC	Yes	Yes
2	Serkhankhil	CHC+	Yes	Yes
3	Sanjan	BHC	Yes	Yes
4	Qazaq	CHC	Yes	Yes
5	Jamal Agha	BHC	Yes	Yes
6	Bolaghain,	CHC	Yes	Yes
7	Malekar	Sub-rural health center	No	No
8	Durnama	BHC	Yes	Yes
9	Qurghan	CHC	Yes	Yes

Table 6.3: Variations in program implementation

Design	Challenges	Implementing Strategies
Cash incentives to be provided to women after service was rendered	• Delays in receiving cash replenishment from HWW • Households asking for additional financial support (in addition to the 300 AFN)	• Women were given 'promise notes' instead of cash, and asked to return later to redeem the cash • Health facility staff take cash from their own fund to give to the women and replenish when cash is available • For DPT3, women were offered option to bring her child back to receive the vaccine when cash is available • Women were asked to come back for cash • In the combined arm, some CHWs stopped referring women to health facilities
Payment to CHWs based on referral slips on a monthly basis	• Some CHWs did not receive incentives for all the referrals due to missing referral slips, poor documentation at the health facility, and/or funds not being available	• CHWs text head of households to remind the woman to bring the referral slip • Incentive payment based on CHW records (and not referral slips) • Retroactively fill-out referral slips at

	• Occasional delays in CHW payment	some health facilities
Communication about the CCT project using posters/leaflets at the health facility	• Limited communication channel. • Low level of literacy among community members	• Households learn about the incentive program through informal channels. • CHWs

Chapter 7: Discussion

7.1. Key Findings

Underutilization of essential health services is a persistent and multifaceted problem in many low- and middle-income countries. The Afghanistan CCT project aims to address some of the demand side barriers through provision of cash incentives to households and CHWs. In this study, I found a positive association in the household arm for both institutional delivery and DPT3 vaccination. However, no association was observed in the CHW arm. Finally, while a small positive association was observed between cash incentive and DPT3 vaccination in the combined arm, a negative association was observed between cash incentive and institutional delivery in the combined arm.

Cash incentive to households

Global evidence to date on the effect of CCT on institutional delivery and immunization remains mixed. For institutional delivery, Lim et al. reported a large increase in the proportion of pregnant women who delivered at a health facility 2-3 years into the implementation of India's JSY program; however, Powell et al. observed a much smaller increase (4%), and only among respondents who have heard about the incentive scheme in Nepal. [3, 52] Similarly, for immunization, Attanasio and Mesnard found a 9 % increase in compliance with DPT vaccination for children less than 24 months of age but no effect for older children in Columbia. [77] Morris et al. reported an increase of 6.9% among children below the age of 3 who have received the first dose of DPT vaccination but no effect on measles vaccination among children of the same age. [16] Finally,

Barham et al. reported a small increase in immunization against measles (3% after 6 months) in Mexico. [86]

Cash incentive to households appears to have a positive effect on institutional delivery and DPT3 vaccination. In particular, women in the household arm are twice as likely to bring their child in for DTP3 vaccination. Nevertheless, utilization rates for both services remain low.

Several reasons may account for observing a larger positive effect in the DPT3 vaccination component of the study. The first is the notable supply-side constraints for institutional delivery. According to the rapid health facility assessment, most facilities sampled did not have the basic infrastructure (i.e., water, electricity, 24 hour access and midwives) to provide safe delivery and capacity to transport patients for emergency referral. In contrast, DPT3 vaccination was more readily available at health facilities sampled in the study. Indeed, in a few communities visited, respondents consistently referred to the intervention as the 'vaccine money'.

The second reason may be that cultural barriers against delivering at a health facility remain prevalent in many parts of Afghanistan. Based on interviews, and consistent with a number of previous studies in Afghanistan, many women indicated they prefer to deliver at home, or are pressured by to do so by family. Information on safe delivery should to be a main component of the communication campaign if the Ministry decides to scale up CCT for institutional delivery.

Third, distance to facility remains a key barrier for many households living in rural areas and the issue may not be addressed by cash incentive alone. Analysis shows that uptake of services remain highest among women who live closer to the health facility and from wealthier families for institutional delivery. For instance, in Karan wa Manjan the district assigned to the combined arm in Badakhshan is mountainous and remote. Services are often interrupted during the winter months with road closures.

Several issues were observed with program implementation including frequent and lengthy payment delays to households and CHWs, and poor communication about the program, particularly to the poor and non-literate population. In Faryab and Kapisa, interviewers noted delays in payment caused tension between households and CHWs, between households and health facility staff, and between CHWs and health facility staff. Fear of angering community members led some CHWs to not refer women to health facilities, and some health facility staff to "ration" payment by providing less cash to each recipient.

Cash incentive to CHWs

This study did not detect a difference in odds of service utilization between districts that provided cash incentives to CHWs for completed referrals and the control districts that did not provide cash incentives to CHWs. Payments to CHWs is a complex issue and one that is not explored in-detail in this study. Global evidence suggests that while incentive is an important component of CHW recruitment, retention and performance, cash

incentive alone is not enough. Of equal importance is having a supportive environment, having community recognition, and having an opportunity for career advancement. In Afghanistan, I did not find studies on the effect of cash incentives on CHW motivation and retention. However, a recent study conducted by Dale on the effect of performance-based payment schemes on provider motivation and quality of care in Afghanistan sheds some light on health workforce motivation. In her study, she found that the promise of additional payment to providers (through a results based financing program) did not affect performance. Instead,, her study noted that, training, supportive work environment, and regular salary payments are likely to be important factors. [101]. While her study focuses on the formal health sector workers, who receive regular salary payments, some observations are likely to be applicable to the volunteer cadre.

Similar to issues noted in the analysis of cash incentive to households, it is difficult to detangle how much of the observed association (or lack of association) is due to the intervention, and how much is a result of poor implementation. Certainly, among the different groups of interviewees participating in this study, CHWs were the most vocal about dissatisfaction with the CCT scheme: many complained about receiving partial payments for the referrals and lengthy and unpredictable delays. Future design of the program will need to develop an effect way to transfer cash to health facilities for timely incentive payments, which is not an easy feat given the nascent stage of development in the financial service industry in Afghanistan.

Cash Incentives to CHWs and Households (Combined Arm)

A more surprising finding from this study is the negative association between the combined arm and program outcome. For institutional delivery, women in the combined arm are less likely to deliver at a health facility compared to the control group. For DPT3 vaccination, cash incentive in the combined arm is associated with higher odds of DPT3 vaccination compared to the control arm.

A couple of possibilities may explain the findings. As discussed in Chapter 1, the intervention groups were purposely selected and systematic differences in health service utilization and socio-economic status were observed at baseline. In addition, due to the poor quality of the baseline study, I only utilize the endline study to assess the program effect and relied on comparisons between the intervention and the control arms based on one point in time. While attempts were made to control for factors that may influence the outcome in the analysis at the individual and household level, there are likely unobserved factors at the district and province level that contributed to the finding.

A second possibility is that the cash incentive scheme, as designed and implemented, negatively impacted on service utilization in the combined arm.. Interviews with two CHWs in the combined arm district in Kapisa province suggest that delays in payments to the households became a source of stress for them and as a result, they stopped referring women for services. To better understand the effect of providing cash incentive to both households and CHWs on program outcome, a study using matched design at the facility or district level is needed.

Uptake of Incentive Scheme

Despite the inconclusiveness of the findings, some interesting observations are noted. First, analysis suggests that uptake of the two conditionalities differ by household and individual characteristics. In particular younger women are more likely to participate in the CCT program for institutional delivery, while age does not appear to be a predictor of service uptake for DTP3 vaccination. Distance from facility has a larger influence on likelihood of institutional delivery than DPT3 vaccination. While it is not possible to discern how much of the observed pattern in service utilization was due to regular care-seeking behavior, and how much was affected by the conditional cash transfer program, it suggests that program design may need to take into account 'market' segmentation for different conditionalities.

Second, the large variability among villages in the uptake of cash transfer for both DPT3 and institutional delivery suggests that contextual factors and program implementation play a role in determining program outcome. This is consistent with findings from other studies: Lim et al noted that uptake of the JSY program ranged from 4% to 48 % among states in India. Powell et al. also found large variability in program implementation at the health facility level. This finding underscores a need to conduct feasibility study in the design phase to ensure the proposed program is suitable for the context, and feasible to implement.

Program Implementation

In this study, several factors shaped how the program was implemented: quality of program administration and monitoring; technical assistance and training provided to health facilities; supply-side readiness to deliver the incentivized outcomes; communication with stakeholders; and timely delivery of cash to beneficiaries. Among the issues highlighted, one factor emerged as a particular challenge for the Afghan program, and that is the technical capacity of the implementing organization. Limited capacity of HWW to implement the project resulted in a cascade of problems that affected the overall implementation of the program and the evaluation of the intervention. Health facility staff did not receive adequate training on cash flow management and no feedback mechanism was in place for front-line staff to communicate these issues to the Ministry and/or HWW headquarters. Communication about the program relied heavily on printed-text, which was not appropriate for a population with a low literacy rate. Finally the lack of experience in designing and conducting evaluation affected the reliability and validity of the quantitative evaluation.

These challenges are not necessarily unique to Afghanistan. In Nepal, Powell- Jackson et al. observed problems at the central level to effectively manage and implement the program that led to lengthy funding delays and confusion about eligibility criteria at the field level. Research on the India program- JSY- also noted challenges with state level implementation including issues with payment delays, conflicting programs that continue

to pay women for delivering at home, and difficulty in standardizing the implementation guidelines across states.

7.2 Conditional Cash Transfer in Fragile States

Health systems in fragile states face a particular set of challenges. In recent years, there has been growing interest to pilot conditional cash transfer programs in post-conflict settings. However, no studies to date explore the question of whether CCT is an appropriate intervention in post-conflict settings.

Findings from this study suggest that CCT *may* be an effective mechanism to increase utilization of services. However, it cautions that in many situations CCT is not likely to be an appropriate intervention.

First, as underscored by a majority of studies on CCT, supply side readiness of the services included in the scheme is a necessity. In fragile settings, services are often either not available, or not consistently available. This may be due to insecurity, migration of health facility staff, and dilapidated infrastructure. Until services are available on a consistent basis, it is unlikely that demand-side interventions can achieve the gains expected. Patients' ability to access services and receive care is also a determining factor in the outcome of CCT interventions. If the impact of conflict means that patients cannot travel freely, women are not able to leave their homes or that government facilities such as health clinics are deemed unsafe, potential beneficiaries are unlikely to be receptive to CCT programs

7.3 Limitations

This section looks into limitations of this study including study design and data quality.

Study Design

There are several limitations with the study design, which limited conclusions that may be drawn on the effect of the conditional cash transfer on service utilization. First and foremost, the main source of data used to assess the association between cash transfer and service utilization was data from a cross-sectional survey. One shortcoming of relying on the cross-sectional survey conducted at the end of the program cycle, is that I was not able to assess temporal changes.

A second (and related) limitation is that districts were purposely selected and assigned to one of the study arms. As a result, imbalances in sample characteristics were observed on a number of key factors. As noted in Chapters 1, compared to women who reside in the intervention arms districts, women who reside in the control arm districts were more likely to be educated, lived in wealthier households, and lived closer to a health facility. Furthermore, higher percentage of women interviewed in the control arm reported having prior deliveries at a health facility. The combined arm had very low maternal care rate at enrollment, which made the arm almost incomparable to other study arms. While statistical techniques may be used to improve the balance between the control and intervention arms, poor design and measurement issues are difficult to overcome. As such, one key recommendation is to conduct further research using a more rigorous

intervention design that would allow policy makers to ascertain efficacy of CCT on service utilization in Afghanistan.

Unmeasured Spillover Effect

The household survey was analyzed based on intention to treat (ITT). That is, results are based on the initial treatment assignment (i.e., women who reside in districts assigned to one of the study arms) and not on the treatment eventually received. In this study, three out of four provinces have at least one intervention district that borders another intervention district, making it plausible and possible that women residing in one area may have utilized services in another area in order to receive the cash incentive. In Wardak and Faryab, this is not likely to have a strong influence on program results, as health facilities are not clustered around the border areas.

Data Quality

The data collectors received training on qualitative and quantitative methods, and were supervised by data quality managers. Nevertheless, several data issues were noted. For the household survey they include: incomplete surveys, instances where data collectors did not follow the sampling frame, and mistakes in data entry. Furthermore, data collected on the age of respondent was truncated at 35. This is likely due to poor data collection rather than a true reflection of the respondents' age. Not obtaining a valid measure for age likely lead to a bias in the main effect.

For the qualitative survey, the main issue was the delay in receiving the translated transcripts. This was a particular problem in insecure provinces, where opportunities to revisit the households were not available. To address these issues, the Ministry is investing in electronic data collection tools that would allow supervisors quick access to the data and opportunities to address issues while the team is in the field.

Chapter 8: Policy Recommendations

Based on findings from this study, below are recommendations for the MoPH as well as other line ministries, development partners, and organizations to consider if a CCT type project is to be designed and implemented in the future.

Policy Recommendation 1: Select conditionalities that are feasible and easy to implement.

In Afghanistan, many basic health facilities and some comprehensive health facilities lack the resources and infrastructure to provide normal deliveries and respond to emergency referrals. Given the lack of supply-side readiness to provide normal deliveries at basic health centers, a more appropriate intervention may be to condition payment on antenatal and postnatal care. In Afghanistan, evidence shows that antenatal care is a strong predictor for institutional delivery. [94] Unlike institutional delivery, antenatal services are more widely available in Afghanistan. In addition, the service may be accessed at a time convenient for the woman and do not require the facility to be open 24 hours a day. Indeed, evaluation of Mexico's Opportunidades program showed that incentivizing women to attend antenatal care increased use of skilled birthing attendants, including facility-based deliveries.[102] One possible option (and one that has also been suggested by Lim et al for India's JSY program) is to divide the cash payment into three parts: first payment can be linked to antenatal care, second payment for delivery, and third payment for postnatal care.

For child health, DPT3 vaccination appears to be a promising and appropriate intervention to include in the CCT program. However, monitoring proved to be difficult as most households do not maintain vaccine cards, and facilities do not have a patient recordkeeping system allowing health care providers to track vaccination. A recommendation for immunization related conditionality is to invest in improving EPI record management system either before, or in parallel with, CCT program to incentive DPT3 vaccination.

Policy Recommendation 2: Invest in supply-side strengthening for health facilities participating in CCT program(s).

Related to the first recommendation, the MoPH should invest in supply-side interventions to improve quality of care. Most academics, implementers, and government ministries and agencies agree on the importance of ensuring availability and accessibility of quality health care services to deliver the conditionality [4, 31, 82, 103]. Lack of supplies and medical staff, as well as poor infrastructure to deliver the intervention hinders the effectiveness of CCT programs, and erodes trust between health care workers and households. In Afghanistan, the Ministry of Health introduced a performance-based payments (PBP) program in 11 of the 34 provinces in 2010. During the pilot phase, a decision was made to not add a demand-side component CCT to these 11 provinces. However, now that the pilot phase of the study has been completed, there may be

opportunity to test the effect of having both demand and supply side incentive schemes to improve coverage of essential services.

Policy Recommendation 3: Provide adequate technical support to field staff and stakeholders responsible for implementing the CCT program. To the extent possible, technical support should be frequent, targeted, and ongoing.

In this study, a key issue raised by many health facility staff was the lack of training in operational matters such as financial management, maintenance of records and communication. In some districts, training was provided only once (at the beginning of the program). On-going and targeted training are needed in order to build the capacity of health facility staff to manage and implement CCT.

Policy Recommendation 4: Select implementation partner(s) with demonstrated experience with implementing demand-side financing programs and capacity to conduct research.

As suggested in Chapter 7, further research is needed to better understand efficacy and effectiveness of CCT in Afghanistan. The implementing agency selected for future program implementation and/or evaluation will need to demonstrate sound expertise in the selected area(s). While cost is always a critical consideration in evaluating any proposal, technical capacity should be given more weight in light of the country context and the novelty of the approach.

Policy Recommendation 5: Design and implementation of CCT programs in conflict and post-conflict settings require additional consideration. Supply-side readiness, financial transfer mechanisms, adequate infrastructure, and availability of providers are core components of a CCT program and may not be available in fragile states.

In conflict and post-conflict settings, additional factors need to be taken into consideration, in both the design and implementation phases. First, supply-side readiness needs to be assessed on a continuous basis. Due to the transitional nature of governance and hampered ability of the public sector to provide services, availability of human resources and supplies needed to deliver care are tenuous. Given the likelihood that service may be interrupted due to ongoing conflict and/or weak infrastructure, a contingency plan needs to be in place in case services are not available. This may include temporary suspension of the program, or contracting with private providers to deliver the service.

Second, to the extent possible, the government should utilize mobile and digital technology to ensure that cash is available and delivered to the target audience on a timely basis. Delays in cash disbursements and cumbersome monitoring processes are common implementation issues in CCT schemes. In conflict and post-conflict settings, these issues are often aggravated by weak institutions and on-going insecurity. Mobile money and/or use of automated electronic transfer machines (ATM) particularly in urban

areas are being tried in several places, including Myanmar and Kenya may be appropriate to pilot. [104] [7]

Finally, when/if appropriate, non-governmental providers should be included in the incentive scheme. Due to the limited ability of the government to provide services in conflict and post-conflict areas, NGOs and private providers often fill the space and become the household's first point of care.

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Appendix 1: Description of the Health System

Similar to many countries, Afghanistan relies heavily on the community to provide services. It follows a "pyramid" model and includes the following levels of care:

Health Posts (HP): Health posts operate at the community level and are staffed by community health workers. The ministry aims to establish one health post per 100-150 families. Ideally the health post is staffed by one male and one female CHWs, who are trained to provide basic curative, preventive, and referral services. Services that CHWs may provide include treatments for malaria, diarrhea, tuberculosis (through community DOTS program) and acute respiratory infections. In addition, CHWs are responsible to provide basic health education, monitor nutrition and growth among children, and assist with immunization campaigns. While CHWs are not responsible to assist with delivery, female CHWs are trained to help families develop a birthing plan, encourage women to seek antennal care services, refer women for institutional delivery, and provide basic postpartum and newborn care.

Health Sub-Centers (HSC): Health Sub-Centers are typically staffed by three people: a male nurse, a community midwife, and a cleaner/guard, providing services for a population of 3000 – 7000 people. According to Ministry records, by 2011, there are 427 HSCs in the country. Services provided at HSC include health education, immunization, antenatal care, family planning, TB case detection and follow up of TB cases, and treatment of some infectious diseases. Midwives will assist with normal delivery, and coordinate transfer of care for emergency cases.

Mobile Health Team (MHT): One strategy to provide services in remote areas is to deploy mobile health teams. MHTs are staffed with a male doctor or nurse, a female doctor, a nurse or midwife, a vaccinator, and a driver. MHT should provide all services in the basic health package.

Basic Health Center (BHC): BHCs are primary care clinics that provide the basic package of services for 15,000 – 30,000 people. By 2011, there are 812 BHCs in Afghanistan. Ministry regulations require BHCs to be staffed with at least one nurse, one CHW, and two vaccinators. In many health facilities, midwives are available to assist with normal deliveries. In addition, CHW supervisors, whose job is to coordinate and manage CHWs in the catchment area, are also stationed at the BHC.

Comprehensive Health Centers (CHC): CHCs provides secondary care services for 30,000 to 100,000 people. MoPH aims to staff each CHC with at least one male and one female doctors, one male and one female nurses, one midwife, one laboratory technician, one vaccinator, and one pharmacist. The team is trained to handle complications and/or illnesses that require more skilled care, including emergency obstetric care services.

Comprehensive Health Centers + (CHC+): CHC+ are clinics that provide all the services that CHCs provide. In addition, handles complications that cannot be addressed at the CHCs. In particular, CHC+ should be able to provide comprehensive emergency obstetric care services, including surgery, blood transfusion, and anesthesiology. Unlike CHCs that do not have beds, CHC+ typically have 10 beds.

District Hospital: DHs provide all services outlined in the BPHS and EPHS and covers a population around 100,000 – 300.000 people. DH is typically staffed with doctors, including female obstetricians/gynecologists, a surgeon, an anesthetist, midwives, lab technicians, a pharmacist, a pediatrician, a mental health professional, a dentist and dental technicians, and one to two physiotherapists. DH serves as the referral center for emergency obstetric care, surgery, and complications that are not able to be resolved at lower level cares.

Management and provision of services involves an innovative system of contracting-in and contracting-out for service delivery, results-based financing for performance improvement, and a balanced scorecard approach for overall management.

Appendix 2: Informed Consent Forms

ORAL AGREEMENT TO PARTICIPATION
Households

PURPOSE

You are invited to take part in a study to help the Ministry of Public Health improve service delivery for maternal and child health services and for you to access these services

PROCEDURES

The interview will take about 1 hour of your time. During the interview, you will be asked questions about your views on a range of health issues including delivery and vaccination, how you and your family make decisions about heath care, your interactions with health service staff and community health workers, and your thoughts on the a Ministry of Public Health project that provides monetary incentive to families.

With your permission, we will record the interview with a digital recorder. You do not have to answer any question that you feel uncomfortable with and you are free to stop the interview at any time.

RISKS/DISCOMFORTS

Being a part of this study will pose minimal risk for you. Our main concern is that your anonymity will be maintained in this interview. We will not record your name in the transcript. The digital recording and transcript of the interview will be stored on a password-protected computer, and only the members of the project team will have access to this information.

Should you feel uncomfortable at any time during the interview, do not want to answer a specific question, and/or decide you no longer want to participate, just let us know and we will skip the question or end the interview.

BENEFITS

With your help, we hope that the study will improve how Ministry of Public Health provides services to you and your family.

VOLUNTARY PARTICIPATION

You do not have to agree to participate in this project, and you may change your mind at any time.

If you have any questions or problems, please contact our field project officer – Mustafa Rahimi at 0700 221578

PERMISSION TO PROCEED

Is it okay to proceed with the interview?

ORAL AGREEMENT TO PARTICIPATION

Stakeholders

PURPOSE

You are invited to take part in a study to help the Ministry of Public Health improve design and implementation of a project that provides cash incentives to families and Community health Workers

PROCEDURES

The interview will take about 1 hour of your time. With your permission, we will record the interview with a digital recorder. You do not have to answer any question that you feel uncomfortable with and you are free to stop the interview at any time.

RISKS/DISCOMFORTS

Being a part of this study will pose minimal risk for you. Our main concern is that your anonymity be maintained in this interview. There are a number of ways we plan to do that. First, we will not record your name in the transcript. Also, we will keep your job description general - so that you will not be identified. For instance, we will refer to you as "health staff," " community health worker," or "health officer" (depending on your position), and will not disclose the location of the health facility. Finally, we will ask two staff to review the transcript and remove any information that may lead someone to identify you as a respondent.

The digital recording and transcript of the interview will be stored on a password-protected computer. Only the members of the project team will have access to this information, and they will not be allowed to share it with anyone else. All recordings will be destroyed at the end of this project.

If at any point you feel uncomfortable, do not want to answer a specific question, and or decide you no longer want to participate, just let us know and we will skip the question or end the interview. You do not have to answer any questions you would prefer not to answer.

VOLUNTARY PARTICIPATION
You do not have to agree to participate in this project, and you may change your mind at any time.

If you have any questions or problems, please contact our field project officer – Mustafa Rahimi at 0700 221578

PERMISSION TO PROCEED

Is it okay to proceed with the interview?

Appendix 3: Qualitative Data Source 1 - Program Discussion Summary

Date:	19 January 2011
Location:	Hope World Wide Offices, Kabul
Participants:	Hope World Wide: Program Manager, Data Manager MOPH/HEFD: Director of Health Economics, CCT Program Manager Health Systems 20/20: Ann Lin, Deloitte Staff (Note Taker)
Overview:	The DSF team from HWW, MOPH/HEFD and Health Systems 20/20 met to discuss program and baseline implementation, monitoring instruments and procedures and begin initial discussions on the endline evaluation.

Program Implementation

- HWW Provincial Officers – One per province. Provide provincial level oversight and are in close contact with the HWW Field Officers. Collate information and all paperwork from the district HWW Field Officers to send to HWW Kabul headquarters (HQ) on a monthly basis.
- HWW Field Officers – The liaisons between the health facilities at the district level and the Provincial Officers. They visit each participating health facility at least two times each month.
- MOPH support – Representatives from the OB/GYN and vaccine department received an official request from the MOPH to introduce the HWW team and request support for the project.
- Financial Flow – A DSF project bank account was setup within each province (managed by the HWW Provincial Officer). The HWW Provincial Officers provide written requests to HWW Kabul HQ for funds, which include incentives, transportation costs for monitoring and office expenses. Each HWW Field Officer nominated and selected one representative at the health facility level to receive and disburse financial incentives. The Provincial Officer provides and monitors the funds to the HWW Field Officers for incentives. The HWW Field Officer then provides and monitors the funds to the financial representative at each health facility. The CHWs in Districts 2 and 3 receive incentive payments one time per month and sign a standard project payment record form. The payment record forms are checked against the register books (both the DSF specific register books and the standard BPHS facility register books for vaccines and deliveries). At the end of each month the HWW Field Officers submit the payment record forms together with the referral vouchers to the HWW Provincial Officer. All payment record forms are then submitted to HWW Kabul HQ and entered into a payment database. Each payment record form has key information including the village/community name in addition to the district name. Finance Officer at HWW Kabul HQ checks that each village/community name matches the defined catchment area. If a village/community outside the appropriate catchment area received an incentive payment

(which has happened), it is noted in the payment database. All HWW Provincial Officers and Field Officers were trained by HWW Kabul HQ to standardize payment mechanisms and forms. HWW recently added economic status and education to the payment record form.

- Referral Vouchers – Standard DSF project referral vouchers are given by the CHWs to their clients. The clients bring the vouchers in to the health facilities when seeking services (DPT3 or delivery). The HWW Field Officer collects all the vouchers every 15 days at each health facility, checks the vouchers against the register books (both the DSF specific register books and the standard BPHS facility register books for vaccines and deliveries). At the end of each month the HWW Field Officers submit the vouchers to the HWW Provincial Officer who then submit the vouchers with the payment record forms to HWW Kabul HQ. Initially, District 4 did not use project referral vouchers, but this was later instituted.
- Monitoring – At least two times a month the HWW Field Officer randomly selects and follows up with 10-20 percent of beneficiaries at their homes to verify payment was received. Each month the HWW Provincial Officer also randomly selects and follow up with 10-20 percent of beneficiaries at their homes to verify payment was received. Transportation costs for monitoring are provided by HWW Kabul HQ. Each quarter HWW Kabul HQ staff participate in monitoring jointly with HWW Provincial Officers and HWW Field Officers. Observations and information are included in quarterly monitoring reports for each province. In Districts 4 (control districts), the HWW team was finding that sometimes the districts were grouping all deliveries (at home, by TBA, in facilities) into the category of facility deliveries to show that the facilities did more work/supported more deliveries. The HWW team cited examples of inflated reporting for DPT3 in Districts 4 also. For this reason, in September 2010 the HWW team initiated DSF project registries for facility births and DPT3 in Districts 4 at all health facilities.
- Community Health Workers – MOPH/HEFD and Health Systems 20/20 team will meet with the MOPH Community Health Unit to get a better understanding of the services provided by CHWs and the pictorial monitoring records kept by CHWs. Hopefully CHWs keep records regarding pregnancies/ANC visits to provide a denominator for DSF project indicators Community Health Supervisors (CHS) in each community can serve as important resources for collecting key information and insight during endline evaluation. Standard HMIS indicators does not include CHW referrals. Some provinces may use CHW referrals but in general health facilities do not collect/keep the referral slips if used.
- DSF Program Awareness – At program initiative, HWW conducted trainings for project staff and CHWs on the project as well as filling out the standard forms. Each month community groups hold meetings and HWW Field Officers participate in these meetings to provide information and answer questions about the DSF program. HWW created several promotional materials (text) including banners, posters for health facilities (in the vaccination centers and delivery wards) as well as leaflets to share with the community. HWW printed approximately 50,000 copies of the promotional leaflets.

Baseline Implementation

- Sample Calculation: HWW requested official information on the number of households in provinces to the Central Statistics Office, but that information was not available. Katie Indarawis (statistician for HWW) calculated the sample size by dividing the population in each village/community by an approximate family-size. However, often several families share one household. Katie Indarawis provided a list of how many households to identify in each village/community.
- Sampling Procedure: The HWW team randomly selected a starting point in a village/community (had a map and chose a point at random) and then surveyed every 10th household (until reaching the specified number of households by the HWW statistician). It was very rare that no one answered the door, but if this happened, a neighboring household was surveyed.
- Survey Staffing: All HWW staff were involved with the baseline survey. In addition, one female and her close male relative were recruited for each province to conduct the household surveys.
- Survey Procedure: Female interviews asked if there was a woman of child-bearing age (11 to 49 years of age) within the household. The woman had to be married (single women and widows were excluded). One woman per household was interviewed. Informed consent was received before beginning the interviews. Baseline survey implementation (including training, piloting and data collection) took approximately two months.

Documents Shared by HWW:

- Excel sheets from HWW Statistician calculating the sample size for the baseline survey. These files include how many villages/communities are in each district and health facility catchment area.
- Electronic version of the Incentive Voucher (Payment Record) to be filled out at the BPHS facility for each client that receives any incentive payment
- Electronic version of the Control District Referral Form to be filled out at the BPHS facility
- Excel files of monthly HWW Statistical Reports summarizing per province and district: actual babies delivered, DPT3 vaccination delivered, and incentives paid. Files from July 2009 through October 2010.
- Electronic versions of CHW referral forms for each province
- Excel files of monthly client registration data by province and district. Files from July 2009 through November 2010.
- Excel file of the number of CHWs per province, district, and health facility

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Date: 18 January 2011

Location: MoPH, Kabul

Participants: MOPH/HEFD: CCT /DSF Program manager, M&E Specialist
Health Systems 20/20: Ann Lin (Note taker), Deloitte Staff

Overview: MoPH provided an overview of the CCT/DSF project. The team discussed key issues with the program and whether or not to move forward with a mid-line evaluation

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- MoPH staff described the project design and the overall management structure.
- CCT/DSF includes 4 arms: control, HH, CHW, and Combined arm
- Within MoPH, the program is managed by CCT/DSF Manager.
- There is another project that focuses on the supply side (Results Based Financing). The pilot is financed by the World Bank.
- MoPH staff expressed frustration with the project and the implementing partner: "Difficult time with the project at the beginning. We were not too happy for many reasons. They did not have the right people for this project. We had to provide them with many guidelines and sometimes do things for them. We made a mistake in choosing them. Now we are close to the end of the project and we still have many problems.
- Baseline study was poorly designed, however highlighted concern with the selection of pilot sites.
- According to baseline, in most provinces, the control site has higher percentage of HH that reported institutional delivery and DPT3 vaccination according to baseline report
- MoPH manager: " In the end, too many things went wrong. We did not have a good baseline survey and had so many delays for the mid-term survey that we decided to cancel. This is a good program. Helps many people. I mean it can help many people in Afghanistan, but too may problems.
- MoPH Manager: "I will give you the quarterly reports and you will see. From the very beginning, we had problems with them. They were not good. So much money spent on implementing the program and correcting mistakes. Not enough money that goes to the households. You will see in the report."
- Decision not to move forward with mid-term survey
- HS 20/20 will review baseline survey

Appendix 4: Qualitative Data Source 2 - CCT Stakeholder Meeting Summary

This brief provides a summary of insights and analysis from key informant interviews conducted by Dr. Alawi, Ann Lin and Lindsay Morgan between June 4 – 13, 2011.[6] The interviews are meant to provide background for the research protocol, which will be developed in July 2011 by HEFD, in collaboration with HS20/20 and HPRO. With that in mind, the aims of the key informant interviews were to:

- Learn details about the implementation of the CCT pilot;
- Understand the broader contextual factors that may have affected the impact of the scheme;
- Understand stakeholder perceptions about the CCT pilot;
- Understand stakeholder perceptions about the CCT *concept*; and
- Learn what the health policy community in Kabul is hoping to learn from the assessment.

Key informants were chosen for their involvement in the pilot and/or knowledge about maternal and child health (MCH) programming in Afghanistan, and include representatives from: Hope Worldwide; BPHS implementing organizations; relevant MOPH departments; and various donor agencies and international NGOs active in MCH programming.[7]

Overall, despite some conceptual and philosophical concerns about CCTs (discussed below), there is a broad consensus among external stakeholders that CCTs are an important tool to try in order to increase utilization of essential MCH services. And despite challenges with implementation, perceptions among HWW and BPHS implementers were also generally positive: they seem to think that the CCTs have motivated CHWs, and that families have responded positively.[8]

Conversations with representatives from HWW and the BPHS implementers indicate poor coordination between HWW and implementing agencies, and a degree of variation about some details of implementation, specifically about who was responsible at health facilities for managing the incentive money, and related paperwork. Other important issues—such as training and sensitization, and monitoring and verification of results—were characterized by generalizations. There were hints, however, that stakeholders may not have understood their roles, and that these crucial functions were not well implemented. This is a key area to probe in the interviews conducted in the field.

Many other important factors also emerged. For example, BPHS implementers were reluctant to

[6] Detailed notes from interviews were typed up and analyzed within 24 hours of the interview by Lindsay Morgan. The team then met to compare their impressions. The synthesis presented in this summary reflects their shared views. See Appendix 2 for detailed notes.

[7] See Annex 1 for a list of key informants.

[8] Some of the BPHS implementers cite rough estimates of the data from their facilities that show modest increases in the uptake of some services. For some, the CCT concept (giving cash to poor people) makes sense intuitively. It is worth noting that the BPHS implementers gained little from participation in the program (health facility were not paid for extra work), so their enthusiasm is interesting. It could be motivated, as could HWW's views, by the hope of future funding. Most likely, enthusiasm about CCTs among representatives from HWW and BPHS implementers is the result of a combination of all these things.

participate in the program because health facilities were not compensated for the extra work; they did not want to assume the risk implied by assuming responsibility for the management of the cash; and they were concerned about bearing the brunt of complaints from the community once the incentive stopped. The degree to which these issues effected implementation will be critical to gauge in the study. Another key theme was the importance of the quality of care at facilities: many respondents agree that this is a more important barrier to address to improve demand for services than the financial barrier. The interviews also revealed many potential confounding factors, such as supply-strengthening efforts, other incentive programs, and even a halt in funds to health facilities due to implementing agency management changes, which may have effected the impact of the incentive program.

Considered carefully, HEFD can find guidance from these interviews about where to focus in the qualitative evaluation. The interviews also signify the level of technical and political consensus that is required for political buy-in for future CCT schemes. From external stakeholders, calls for policy guidance and a strong set of lessons learned about implementation are clear.

Background

In December 2008, Hope World Wide (HWW), a U.S.-based NGO, was contracted by the Afghan MOPH, in collaboration with the Global Alliance for Vaccines and Immunization (GAVI), to implement a 2-year conditional cash transfer (CCT) pilot program in four provinces (Badakhshan, Faryab, Kapisa and Wardak) in Afghanistan. The program offers cash incentives to mothers conditional on delivery in a facility and DPT3 immunization for their children (and) to community health workers conditional on referrals for these services.

The pilot has two broad aims:

- To stimulate demand (and therefore utilization) by women and their families for two key services: facility-based delivery and DPT3 immunization. The Afghan government HSS Program Funding Application describes the rationale behind the use of cash incentives to stimulate this change: “Demand side financing may be useful in overcoming socio-cultural obstacles that impede the use of services especially by women. It is envisaged that this is a short-term solution that will only be required until women are convinced of the value of the services and until female literacy rates have improved.”

- To motivate community health workers (CHWs) to refer women to facilities for these services: “According to 2006 HMIS data, each CHW only referred an average of 3.9 persons to health facilities per quarter, a figure which is considered alarmingly low. The intent of this pilot program is to test whether provision of incentives for CHWs, who otherwise are volunteers, will increase the accomplishment of priority targets (increasing the percentage of deliveries by skilled birth attendants and achievement of full immunization of children) of the BPHS.”

The program launched in July 2009 and ended in May 2011. A baseline and end-line household survey were conducted by HWW. The MOPH and HS 20/20 will complement these surveys with qualitative research reports.

Implementation

Training & Sensitization

In order for a program to be successful, stakeholders must fully understand their roles and responsibilities, and beneficiaries must be aware of and understand the program from which they are supposed to benefit. In the CCT pilot, the degree to which training and sensitization were sufficient (and with what frequency follow-up training and sensitization was conducted, and to what effect) is unclear.

There were at least four necessary levels of training: Provincial Supervisors, District Field Officers, CHWs, and health facility staff. But interviews suggest that not everyone understood their roles. For example, in Wardak, BPHS implementers told us that when the health facilities learned about the incentive, it caused jealousy among staff, who felt it was unfair that there was yet another incentive for deliveries for the midwife (evidently, midwives receive $6 per delivery in BPHS facilities in Wardak facilities managed by the Swedish Committee for Afghanistan). This remark suggests that the facility thought the incentive was for facility staff, and not for families. (It also demonstrates that, although one of the requirements for district selection was that there be no other incentive schemes in operation, that this was not always the case.) In another example, HWW visited a CHW during a supervision visit who complained about not receiving the incentive. When HWW checked with the facility, they found that the CHW had referred a measles patient, and therefore, did not understand that the incentive was for DPT3 and delivery only.

To sensitize communities, HWW placed posters in village bazaars; posted leaflets in health facilities; and held meetings with various community organizations, including health shuras, and community development committees. But according to interviews, sometimes families travelled outside their district for health services, to facilities where they would not receive an incentive. This may be due to superior quality at those facilities, or it could be because they were unaware of or did not understand the incentive program.

Financial Management

At each health facility, one or more staff members were assigned to manage the incentive payment and associated paperwork.[9] Our interviews suggest there was no standardized system for this procedure in facilities. Some informants said that within health facilities, financial management was the responsibility of the vaccinator; others, that the midwives were also involved; and still others, that the in-charge oversaw the process. This raises questions about responsibility and accountability for funds that should be probed during the study.

Coordination

Prior to program launch, HWW, HEFD and representatives from BPHS implementers met in Kabul to discuss the program. HWW said this was important, in order to impress upon the BPHS

[9] This would include receiving the referral form from the patient upon arrival, signing the payment voucher (which verified that payment was delivered), and giving the incentive to the family (FOs provided the incentives to the CHWs).

implementers that the MOPH was behind the scheme (see discussion below about NGO reluctance to engage). Following the meeting, according to most of the BPHS implementers, there was little or no follow up from HWW.[10] There is a high degree of dissatisfaction and concern about this, as BPHS implementers were unaware of what was happening in their facilities around the money exchanging hands. (One implementer acknowledged that this was also their own shortcoming: they should have kept more careful track of this.)

Monitoring & Verification

Among HWW staff, descriptions of how monitoring and verification were managed were consistent but vague. As this is a key function of any pay-for-performance scheme, it will be important to probe this issue deeply with stakeholders during the study interviews, particularly as the institutions responsible for paying families (the health facilities) were essentially "outside" the program. Monitoring and verification may have been weak (indeed, when asked what they would do differently in the next CCT scheme, several HWW informants said they would choose different provinces and districts that were easier to supervise). There may have been problems with the cash at facilities that HWW was either unaware of or unable to police. There is a large knowledge gap here that will need to be addressed during the study.

Program Design

There were questions from all groups of key informants, about the overall design of the program.

- A common refrain was that the incentive amount may have been too small, and should have varied depending on the region. In some areas, the payment to families seems to have been more than enough to compensate for travel costs, while in others, it did not come close to covering the cost of transportation.
- There were also questions about rewarding facility birth, as opposed to skilled birth attendance, and of rewarding facility-based immunization, when there were mobile outreach campaigns in some areas.
- The fact that health facilities were not compensated for the extra work (paying incentives, maintain registries) was universally cited as a significant shortcoming of the program. (It is unclear what affect this may have had on facilities; it may have been hugely demotivating, may have created tensions among staff, and may have induced cheating—these areas must be probed during the study).
- The lack of external verification was another factor cited as a design weakness.

Contextual Factors

A complicated web of contextual factors was illuminated from key informant interviews, which may have effected (for better or worse) the impact of the CCT. These include:

- There were other incentive programs being implemented simultaneously in CCT pilot

[10] Kapisa seems to be an exception.

districts.

- There are many facility-level issues, which informants say are a more significant determinant of patient demand, including: the lack of female health workers; absenteeism, especially among midwives; the poor quality of services, including lack of privacy, lack of respect and kindness from staff, lack of equipment.
- Informants also cited personal, cultural preferences as a key determinant of patient demand, including: women want their husbands at the delivery with them; they are more comfortable at home; home delivery is normal and expected.
- Security and transport issues also loom large as the major barriers to increasing demand for and access to services
- Some informants questioned the feasibility of normative changes through social diffusion in disparate communities, where communication of any kind is difficult.
- On CHWs, informants were divided about whether or not they should be compensated, but emphasize that they are motivated by many other factors besides money, including: altruism; desire to acquire new skills; prestige; and the hope of future benefits (such as formal employment in the health sector).

What External stakeholders Hope to Learn from the Assessment

- *Sustainability*: Is the program sustainable? Are there funds to pay for scale up, and once you begin paying incentives to spur complex behavior change, how long do you have to pay them?
- *Program Learning:* Stakeholders want a strong set of lessons learned about implementation / operationalization. How did the program work: what were the challenges, how were they overcome (or not), and what worked well? What could have been done differently/better in terms of design? What recommendations can HEFD give to others who are considering whether or not to test incentives to families and/or CHWs?
- *Policy Implications*: What are the broader policy implications? Will this program be scaled up? Should it be paired with supply-strengthening activities?
- *Design*: Are financial constraints the most important constraints to address or are other barriers are more significant? Were these the right indicators? Were the payment amounts correct?
- *Equity*: Was the program equitable? Would families who benefitted from the incentive have gone to facilities anyway? Did the flat incentive amount to families, irrespective of where they lived, work?
- *Cost-effectiveness*: Is it cost-effective? Given the range of options for addressing barriers to demand for and access to MCH services, is paying cash incentives the best option?

Philosophical and Conceptual Concerns about CCTs

- Paying cash incentives cannot address the chief constraints to increasing demand for and access to key MCH services.
- There is not sufficient capacity to manage a CCT program.
- A program of cash incentives is particularly prone to corruption, and may induce cheating.
- Paying people to do what they should do anyway, voluntarily, will interfere with their intrinsic motivation. (This mainly applied to CHWs but a few stakeholders also voiced this concern in terms of mothers and families.)

- Incentivizing CHWs for certain services will lead to neglect of others.
- Paying incentives is not sustainable (and once you end the program, you risk the unintended consequence that people will no longer do what they have been paid to do).

*It is important to note that none of these concerns are unique to Afghanistan, nor is there any evidence to support that assertion that paying modest incentives damages intrinsic motivation.

Lessons Learned

Overall, a number of important lessons were learned from the key informant interviews, namely:

- The incentive amount may not have been appropriate in all areas.
- Lack of compensation for facilities is viewed as a major problem.
- Coordination is critical and appears to have been weak in the pilot.
- CCT schemes require capacity to manage, and robust verification systems (verifying your own program creates a conflict of interests).
- Many of the challenges identified by HWW (sometimes phrased as things they would change next time) were not in their control, such as issues at the health facilities, province selection and other key design issues like incentive amount.
- Facility/supply issues dominate.

Looking Ahead: Stakeholder Buy-in

There seems to a consensus that information about the CCT program was not adequately shared with stakeholders. There is a palpable sense of frustration about this among stakeholders. However, interviews suggest that if the MOPH invests in building consensus around these issues, some informants who are "on the fence" about CCTs (neither strongly opposed nor strongly in favor), may be persuaded by evidence, and more amenable and supportive of these programs in the future.

Curriculum Vitae

Ann Lin
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Education

- PhD, Health Systems, International Health; Johns Hopkins Bloomberg School of Public Health
- MA, International Economics and Development; Johns Hopkins School of Advanced International Studies, 2001
- BA, International Relations (Graduated with Honors); University of Colorado, Boulder, 1997

Presentations

Ann Lin (2014) Poster Presentation: " People-centered Health Financing Strategy in Mozambique" Third Symposium on Health Systems, Cape Town South Africa

Ann Lin (2013) Oral Presentation " Preliminary findings from the CCT pilot in Afghanistan" Global Health Metrics & Evaluation, Seattle Washington

Ann Lin (2012). Oral Presentation: "Innovation in Health Financing" Society of International Development, Washington, DC

Ahmed Salehi, Ann Lin (2011). Panel Presentation: "Stimulating Demand: Preliminary findings from evaluation of conditional cash transfer project in Afghanistan" International Health Economics Association, Toronto, Canada

Teaching Experience

Teaching Assistant for the following courses

- Health Systems in Low and Middle Income Countries
- Health Policy

Employment History

March 2015 – Current, Head of Health Systems – 3MDG Fund Yangon, Burma

- Manage $50 million dollar grant portfolio that supports the Ministry of Health in the following areas: Supply Chain, Evidence-based Policy Making, Human Resources for Health, Community Engagement, and Governance, Health Management Information System.

- Provided technical support in the development of key health systems initiatives including health management information system, and establishment of a center for health policy.

January 2011 – January 2015, Manager - Deloitte Consulting LLP Arlington, VA

- Haiti Results Based Financing: Developed implementation strategy and monitored roll-out of the Results Based Financing (RBF) scheme to increase quality and quantity of health care services in 80 health care facilities in Haiti with a budget of $1.2 million dollars.

- Mozambique Health Financing Strategy: Assisted in the development of the health financing strategy in Mozambique. In partnership with the World Bank, WHO, UNICEF and DFID conducted analysis on fiscal space for health and risk-pooling options.

- TOMS shoes: Developed strategic partnerships for TOMS shoes' one-to-one giving campaign in Mozambique. Assisted TOMS shoes in identifying and short-listing potential partners. Structured multi-year partnership between the Red Cross/Mozambique and TOMS that resulted in shipment of 300,000 pairs of shoes.

- Rwanda Results Based Financing: Led fiduciary risk assessment of Rwanda's RBF mechanism. In collaboration with USAID/Mozambique and USAID/Rwanda, conducted in-depth interviews with key partners, assessed data collection and verification process, and documented financial payment system.

- Evaluation of the Conditional Cash Transfer Project in Afghanistan: Supported program assessment of the conditional cash transfer initiative in Afghanistan.

- Revenue generation strategy in Afghanistan: Developed revenue generation strategy and implementation plan for the Ministry of Health in Afghanistan. The objective of the strategy is to reduce dependence on donor financing by 70% by 2020. Activities include analysis of feasibility of tobacco tax and mobile phone tax.

May 2008 - November 2011, Independent Consultant Washington, DC

- Jordan Investment Board: Main author of the public-private partnership strategy to finance and develop a health city in Irbid, Jordan; conducted analysis of pharmaceutical, bio-technology, and medical tourism markets; provided advice on financing structures and instruments; coordinated stakeholder meetings with investors and government officials.

- Survey Assessment of Vietnamese Youth: Key role on a Johns Hopkins team that provided technical consultation on the design and analysis of the Second Survey Assessment of Vietnamese Youth - a nation-wide household survey of youth in Vietnam. In addition, coordinated series of regional meetings on youth development for the UNICEF East Asia and Pacific Regional Office (ERPO) in Thailand.

January, 2006 – April, 2008 Assistant Director, Johns Hopkins Medicine, Baltimore, MD (Selected Projects)

- Tawam Hospital (UAE): Assisted in structuring partnership between Johns Hopkins Medicine and Tawam Hospital. Developed plans for the construction of Centers of Excellence; for improvement

of patient safety; for strengthening the medical education system; and for expansion of community outreach programs.

- Health Systems Modernization in Eastern Europe: Managed health systems assessment and strategy development for the following countries: Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Slovakia, and Slovenia.

- Trinidad and Tobago Health Systems Strategy and Evaluation: Coordinated assessment of the management structure of the health system at the national and subnational levels and supported implementation of human resource strategy to strengthen hospital leadership's management capacities. Active member of the leadership committee, which oversaw the design and implementation of $75 million dollar health systems reform project.

- Tokyo Midtown Medicine Quality Improvement Centers of Excellence: Managed strategic partnership with Tokyo Midtown Medicine, an ambulatory clinic affiliated with Johns Hopkins Medicine. Oversaw year-long quality assurance project to strengthen patient safety measures.

December 2000 – January 2006 Senior Consultant, KPMG/Bearing Point, McLean, VA

(Selected Projects)

- India Micro-Insurance Cooperative: In collaboration with seven Micro Finance Groups (MFIs) developed product standards and strategies to provide rural communities with community based health insurance.

- India Insurance Regulatory Reform: Provided technical consultation to strengthen the insurance market, with a focus on the following work-streams: health financing innovation, insurance term standardization, and data development. Co-authored papers on (1) minimum capital requirements for health insurance, (2) roadmap for the establishment of a community based health financing resource center, and (3) innovations in managed care.

- Centers for Medicare and Medicaid Service: Conducted evaluation of the public reporting of hospital quality measures; assisted in the development of performance indicators for selected chronic illnesses; assisted in the assessment of various communication programs for the Agency.

Languages

- English, Advanced
- Mandarin Chinese, Native